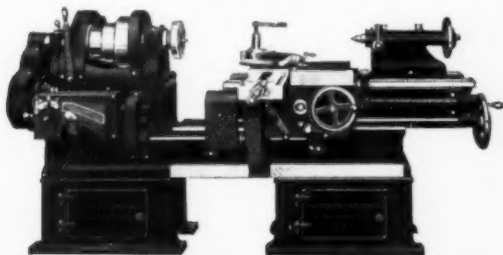


Hitchcock's Machine Tool Blue Book

JUNE, 1929

TWENTY-FOURTH YEAR

RAHN-LARMON LATHES



Series "AG" 18/36-inch Extension Bed Gap Lathe

THIS LATHE is designed to meet the requirements of those shops where a large range and variety of work is to be done at a minimum expenditure for equipment. The top bed slides along the lower one, and both are very heavy and substantially constructed. Perfect alignment is assured in all positions. The versatility of this lathe, plus its power and speed, make it ideal for all-around use.

*Tell us your requirements and we will
show you how to cut your costs*

THE RAHN-LARMON COMPANY

CINCINNATI, OHIO

PUBLISHED AT 408 So. DEARBORN ST. CHICAGO

Proper Sharpening

on

Brown & Sharpe Cutter and Tool Grinding Machines

helps you get better and longer service from
your Cutters—These circulars show you how



Sharpening Helical and Staggered Tooth Cutters on the Brown & Sharpe Nos. 2 and 3 Cutter and Tool Grinding Machines is as simple an operation as sharpening Plain Milling Cutters, but there are a few points that should be known to the man in charge of their maintenance.

To help you get the best possible results from your cutters we have issued the two circulars shown above, and a third which describes the sharpening of Two Lipped End Mills.

We shall be glad to send a copy of any of these leaflets or specifications of our Cutter Grinding Machines at your request. Address Dept. HH.

BROWN & SHARPE

BROWN & SHARPE MFG. CO.



PROVIDENCE, R. I., U. S. A.

Hitchcock's Machine Tool Blue Book

**Controlled
Circulation**

**25,000
Monthly**

JUNE, 1929

TWENTY-FOURTH YEAR

(Repeated by Request from March Issue)

Are Obsolete Machines on Your Pay-Roll ?

Nearly half of the more than a million machine tools in use in this country are over ten years old.

It is a fairly conservative estimate that these machines, taken as a whole, do not average over fifty per cent of their original efficiency.

No wonder that cost records are so discouraging in many manufacturing plants.

There are progressive manufacturers, however—lots of them. By replacing their obsolete machine tools with the latest modern equipment, they are increasing production and reducing costs in a most satisfactory manner—some of them to a degree that really is astonishing.

This is a good example to follow. Manufacturers who have obsolete machine tools in their plants—machines which either have seen their best days or have been superseded by something better—will find it profitable to schedule as rapid replacement as conditions will permit.

They will be more than gratified by the results on their production and cost sheets.

Published By

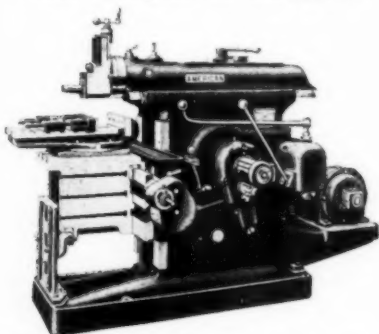
Hitchcock Publishing Co.

508 S. Dearborn St.,

Chicago, Ill.

The New "American Auto-Oiled"

The Shaper of Shapers



The "Auto-Oiled" is the result of 41 years of active participation in shaper development.

Its points of excellence are—Tremendous cutting power; unparalleled rigidity; permanent accuracy; automatic forced lubrication; multiple splined shafts; Timken roller bearings; multiple disc clutch and brake; V-type ram; improved table support; helical gears, alloy steel, hardened; tu-piece bull wheel; centralized control. Accessories and attachments for every conceivable kind of shaper operation.

We want every shaper user to know all about the "American Auto-Oiled"—how it does faster work and better work, with greater profit. Mail us your request for complete information today; don't delay—you'll not be obligated in any way.

The American Tool Works Company

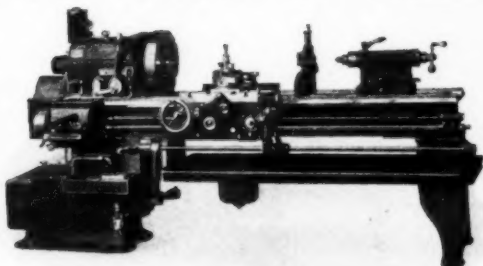
Cincinnati, Ohio, U. S. A.

LATHES

RADIALS

SHAPERS

BIG Work or SMALL



BRADFORD "All Geared" LATHES

A BRADFORD in your shop is a guarantee of low turning costs—whether you want to turn a few pieces or a thousand, the job will show a profit. It not only has the productive capacity for profitable manufacturing, but a rigidity and resistance to spring that enables it to hold close limits while taking the heaviest cuts.

Send for illustrated, descriptive bulletin

Bradford Unit Type Drilling and Tapping Heads



Self-contained, motor driven units, designed for one or more heads to be built into one unit at any angle from horizontal to vertical. Spindle speeds from 75 to 2000 R. P. M. For single or multiple spindle drilling and tapping.

Illustrated Folder on Request

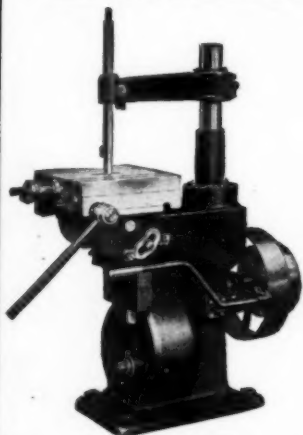
The Bradford Machine Tool Co.

Precision Lathe Builders Since 1840

657-671 Evans Street,

Cincinnati, Ohio

BAKER KEYSEATERS



Built in
Five Sizes

Designed
for
Miscellaneous
Keyseating
and
Slotting

No. 0 KEYSEATER
Capacity 1" Wide—9" Maximum Stroke

*Exclusive advantages in securing Accuracy and
High Production are:*

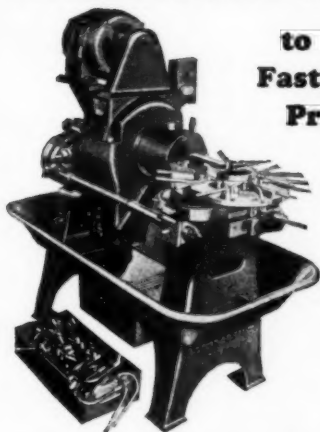
1. Draw Stroke Drive.
2. Upper Support for Cutter Bar.
3. Tilting Table (for Taper Keyseats).
4. Simplicity In Operation.

Write for Catalogue

BAKER BROTHERS, INC., Toledo, Ohio

*Builders of Boring, Drilling, Tapping,
Keyseating and Slotting Equipment.*

The Choice of the Automobile Industry



**to maintain
Fast, Accurate
Production**

**Cuts Labor
Costs 50%
on
Threading
Operations**



RICKERT-SHAFER Automatic Threading Machines

are practically the only automatic threaders which will maintain the accuracy demanded by automobile manufacturers.

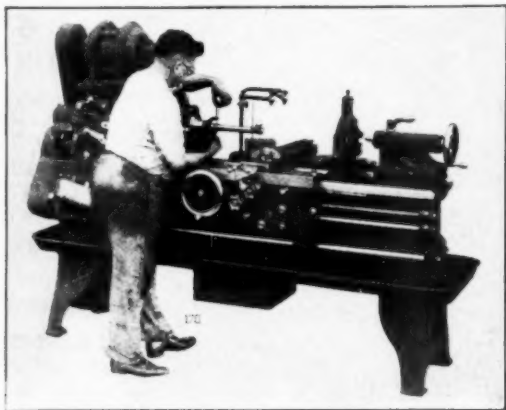
The R-S machine can be adopted to almost every job of threading from the simplest to the most complicated. Combination tools can be supplied so that chamfering, reaming, facing, etc., can be done simultaneously with the threading and with but one chucking.

The R-S Single Purpose Threader is a sturdy machine built for those shops where production and accuracy (with a minimum of upkeep) are most important.

Send for details and production records

RICKERT-SHAFER CO., Erie, Pa.

EVERY CINCINNATI LATHE



is thoroly tested before shipping. A limit variation of .001 is allowed, but none leave our factory that show a greater error in any alignment.

Just how long a lathe will do its work well, depends much on how carefully and accurately the headstock, tail-stock, carriage, etc., were fitted, also aligned to the bed.

We Tool Up Complete for Your Jobs

Specify *Cincinnati Lathes* and be sure of the quantity also quality work you produce.

*Sizes 16" to 32" either Cone Type or
Geared Head, belt or motor drive.*

Specialists 25 Years

The Cincinnati Lathe & Tool Co.
Oakley, Cincinnati, Ohio

Photo below shows the work of a Monarch Helical-geared Timkenized lathe. Note smooth finish and absence of gear tooth marks.

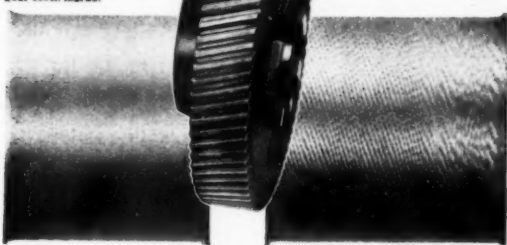


Photo below shows the work of a lathe equipped with spur gears and plain bronze bushings. Note gear tooth marks.

Helical Gears ~ *The First Essential for Fast, Smooth Lathe Work*

HELICAL gears and Timken bearings are the reasons why Monarch Lathes are smoother, quieter, more powerful. This combination eliminates chatter and tooth marks—makes possible fast, smooth lathe work, full utilization of power, deeper cuts, longer lathe life and lower cost per hour of service.

*Write for bulletin of Monarch Helical-geared,
Timkenized, High-speed Lathes—showing
essentials for fast, smooth lathe work.*

The Monarch Machine Tool Co., Sidney, O.
New York Sales Office: 857 Graybar Bldg.

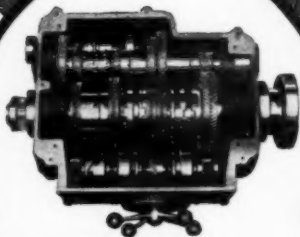
Monarch Lathes



Helical Gears - Timken Bearings
SMOOTHER.. QUIETER.. MORE POWERFUL



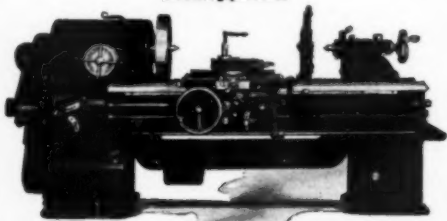
MONOTROL

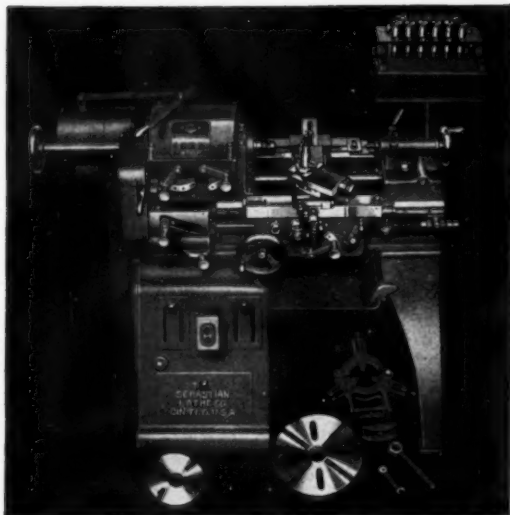


Precision Production

The many exclusive features of Monotrol Headstocks cannot be fully explained here—but literature fully describing and illustrating the advantages of the single lever direct reading dial spindle speed control, herringbone constant mesh gears and Timken bearings will be sent upon request. Get this information and convince yourself that Monotrol Engine Lathes will do your work faster, better and in less time.

The Sidney Machine Tool Co.
Sidney, Ohio





11" Gold Seal Heavy Duty Precision Tool Room Lathe

Built for heavy cuts and fast work, yet aligned with an accuracy of .0005". Graduations are provided at every point. The hole through the spindle is $1\frac{5}{16}$ " diameter, and the lathe takes collets up to $\frac{3}{8}$ ". All bearings are over-size. Made in motor, and single pulley belt-driven models.

The Small Lathe you have been looking for

Powered far beyond its apparent size, generously proportioned and equipped with a completeness unequalled in its field, the 11" Gold Seal Heavy Duty Precision Tool Room Lathe offers the manufacturer a long needed addition to his lathe equipment.

The time saving convenience, precision and versatility of this machine will reduce the cost of producing a wide range of parts—much work can be handled with it that formerly had to be done upon a larger machine.

All details sent upon request

THE SEBASTIAN LATHES COMPANY
313 Culvert Street, Cincinnati, Ohio
NEW YORK ADDRESS: Room 372, 50 Church St.

SEBASTIAN LATHES

LONG LIFE

and ease in operation are two of the outstanding characteristics of the CLEVELAND Planer—and are the results of its simplicity of construction. It has fewer parts than any other open side planer made—and is the product of nearly thirty years of study and improvement. Every feature is thoroughly tested on every kind of planing job, and actual service proves that CLEVELAND Planers are designed and built RIGHT.

The Cleveland Planer Company

Established 1900

3148 Superior Ave., Cleveland, Ohio

Send
for
Folder

Over
1100
Installations

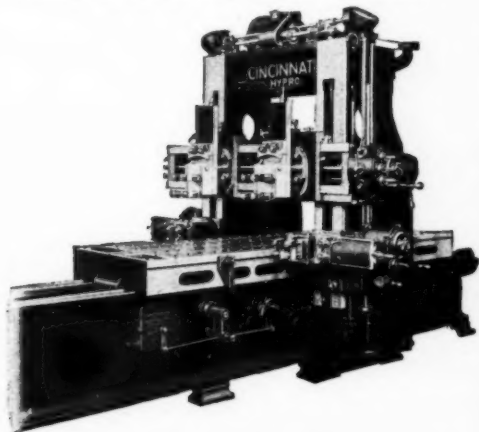
26"
to
72"



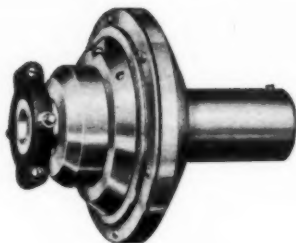
The Open Side Planer with the Column
Base Cast Integral with Its Closed Top Bed.

High Production Features

Selective Dial Feed
Rail Clamping Device
Instantaneous Rail Lift
Rapid Power Traverse
Forced Lubrication
Combination Steel
Herring Bone and Spur Gear Drive
Long Inverted Dovetail Down-Slide



The Cincinnati Planer Co.
Cincinnati, Ohio



Quit Trifling—

With the most important function of production.

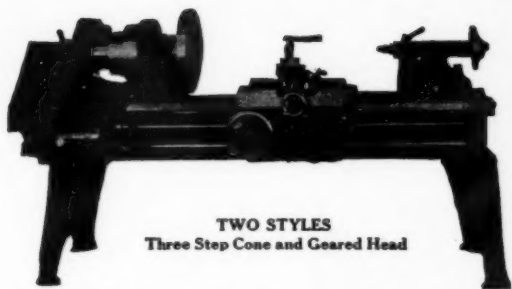
The Conway Disc is the last word in friction clutches. Install one and the control of your machines is no longer a problem.

You are only temporizing with starting and stopping until you adopt the efficient command of the Conway Disc Clutch.

The Conway Clutch Co.

West 6th Street, Cincinnati, Ohio

"It is a splendid Clutch"



TWO STYLES
Three Step Cone and Geared Head

16"x6' New Design \$525.00
Weight 1900 lbs.

18"x8' New Design \$585.00
Weight 2100 lbs.

3-step cone, double back gear, quick change gear, graduated compound rest, steady rest, lead screw and feed rod, tool post, centers, countershaft and wrenches, ready to run.

A lathe in the **INEXPENSIVE** class, for your shop equal to, in all respects, lathes of much higher price, having all their features:

**Alignment and Precision
Speed in Production
Ease of Operation
Ability on all Work
Low cost of Upkeep
INEXPENSIVE COST to YOU**

Made in 16" and 18" swing from 6' to 18' length of bed. Either 3-step cone belt drive or All Geared 9-Speed Drive Head for 2 H. P. Motor.

*Write us for full information and **PRICES***

The Rahn - Larmon Co.
2943 Spring Grove Ave., CINCINNATI, OHIO

Real Value for Your Drill Dollar!



MORE than 117 Aurora drills are in use in four industrial plants—a sure indication that they are giving satisfaction—that more than a hundred cents in results is being secured for every dollar invested in them.

Note These Six Big Improvements

1. Hardened and ground washer under crown gear—formerly no thrust washer used.
2. Shafts ground entire length—formerly not ground.
3. 31¢ grade tin-base babbitt used—formerly 10¢ grade lead-base babbitt.
4. Pack hardened gears—formerly case hardened.
5. Hardened keys in spindle head—formerly soft keys.
6. Solid forged spindle—formerly butt-welded.

Write for drill catalog

THE OESTERLEIN MACHINE CO.
CINCINNATI, OHIO

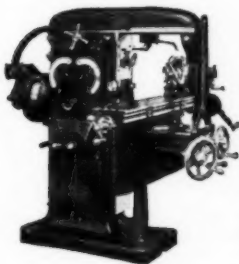
OESTERLEIN
OHIO
MILLING
GRINDING DRILLING
EQUIPMENT

Save \$700 to \$1000 on a Miller!

WITH these machines a high standard of accurate milling can be maintained. The standardized spindles are forged from high carbon chrome nickel—every gear, shaft, clutch and stud in the driving and feed mechanism is either pack hardened or heat treated.

No 2 Ohio
Universal
Constant Speed
\$1775

No. 3 Ohio
Plain
Constant Speed
\$1880



Consider

these features also:

- (1) Vee flat overarm; (2) complete interchangeability of arbors, chuck, etc.; (3) fully inclosed motor—readily accessible; (4) quick-stop brake; (5) disengaging hand wheels; (6) automatic lubrication; (7) 16 feeds—16 speeds; (8) sensitive control starting lever; (9) pilot wheel for each operation to overarm; (10) gauging strip.

Reasons for Low Prices

Increased production makes possible manufacturing economies.

While incorporating every feature essential for economical milling—these machines run right handed and do not have reversing mechanism, dual control or frictionless bearings.

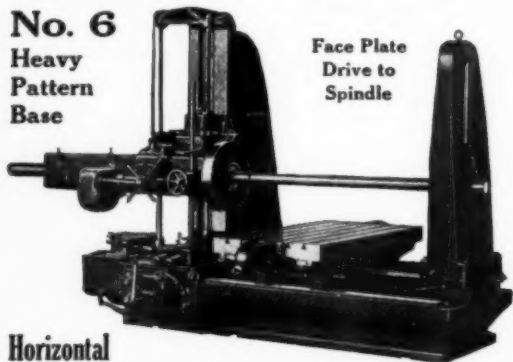
WRITE FOR MILLER CATALOG

THE OESTERLEIN MACHINE CO.
CINCINNATI, OHIO

The New Improved **DEFIANCE**

No. 6
Heavy
Pattern
Base

Face Plate
Drive to
Spindle



Horizontal **Boring, Milling, Drilling and Tapping Machine**

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

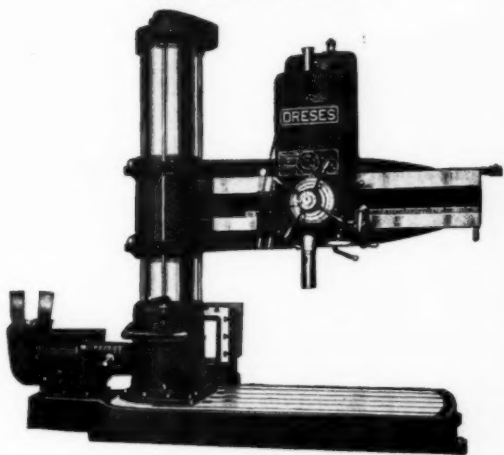
Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines. Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works **Defiance, Ohio**

**Designers and Builders of Precision-Production Machine Tools and
Special Woodworking Machinery**

We have—"IT" The Radial Drill

**You need for your
Special Work**



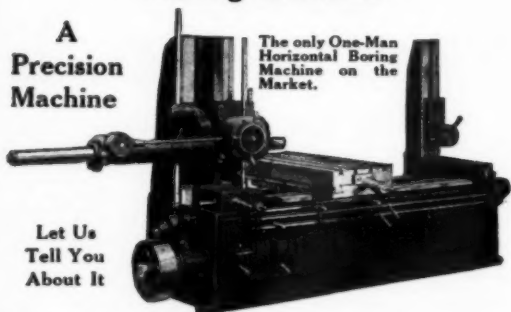
*Write for Prices
and Catalog*

The Dresses Machine Tool Co.
CINCINNATI, OHIO

Lambert Horizontal Boring and Milling Machine

**A
Precision
Machine**

**The only One-Man
Horizontal Boring
Machine on the
Market.**

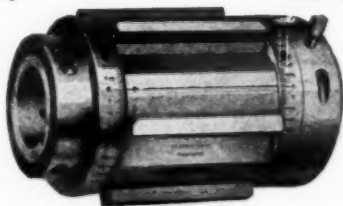


**Let Us
Tell You
About It**

Lambert Expanding Reamers

**Shell style
from 5" up**

**Machine Reamers
from 1 1/4" up.**



3" Tool expands 1", others in proportion to size.

High Speed Blades, every Tool Guaranteed.

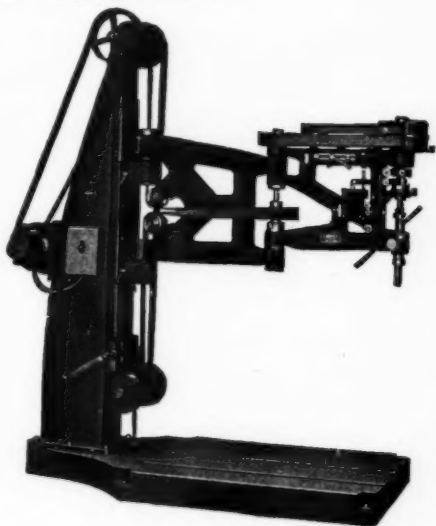
A GREAT TIME SAVER.

Full Details, Specifications, Price, etc., on Request

Lambert Machine & Engineering Co.

East 55th St. at Euclid Ave., CLEVELAND, OHIO

THE HAMMOND AUTOMATIC
Tapping Machines are designed
to rapidly and efficiently perform
drilling, tapping, stud, nut and screw
driving operations.



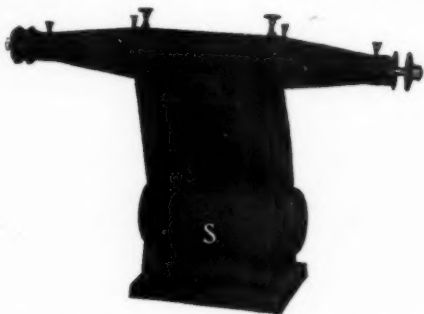
Drilling radius.....4' 0"
Capacity $\frac{3}{4}$ " drills, $\frac{5}{8}$ " taps, $\frac{1}{2}$ " studs

Write for full information

The Hammond Manufacturing Co.
7808 Kinsman Road, Cleveland, Ohio

STANDARD

Right Speed Buffers



G. E. 40° Ball Bearing Motors and push button control. Four S. K. F. Ball Bearings. Buffing Spindle, nicke. steel. Speed 2000 to 3000.

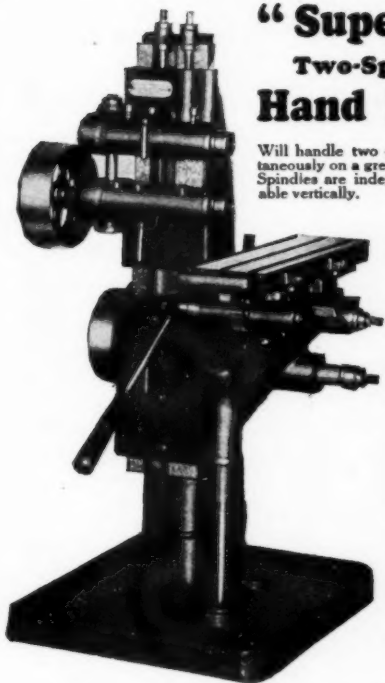
Made in four sizes:
3—5—7½—10 H. P.

Angle Plate Grinders, Electric Drills, Grinding, Polishing and Buffing Machines in various types and sizes.

Established 1912

Write for Late Catalog

The Standard Electrical Tool Co.
1938 W. 8th St., Cincinnati, Ohio



"Superior"

Two-Spindle Hand Miller

Will handle two operations simultaneously on a great variety of work. Spindles are independently adjustable vertically.

Slides move freely without cramping, since all guiding surfaces are long in proportion to their width. All sliding members are fitted with adjustable gibs, and can be securely clamped without disturbing adjustment.

Especially adapted to cut step-cut piston rings, as it will handle both sides at once; also for splitting crankshafts and connecting rod bearings, both sides of which are also handled at once. Many "Superiors" are at work on such operations.

One plant already uses fifty

of these machines—not to mention the wide use to which they are being put in a large number of plants. Furnished for direct drive from main shaft, (friction countershaft built integral with machine) or for motor drive.

Descriptive Literature Gladly Sent on Request

We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

Superior Machine & Engineering Co.

1920 Ferry Park

1-1

1-1

Detroit, Mich.

The Improved Canedy-Otto No. 29

Ready for the Job



Completely
Motorized—
Also Furnished
Belt Driven

3 Spindle Speeds
720-1430-3000 R. P. M.

The Improved Canedy-Otto Sensitive Bench Drill comes complete with toggle switch, cord, socket, $1\frac{1}{2}$ " endless leather belt, and chuck. The motor is adjusted on a sliding base that maintains the proper tension on the belt at all times, and cuts lost motion and vibration to the minimum. Now equipped with a 3-step cone pulley which gives three spindle speeds of 720, 1430 and 3000 R. P. M. Complete information, with close price, upon request.

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois
New York Branch 407 Broome St. Complete stock carried at branches San Francisco Branch 955 Folsom St.

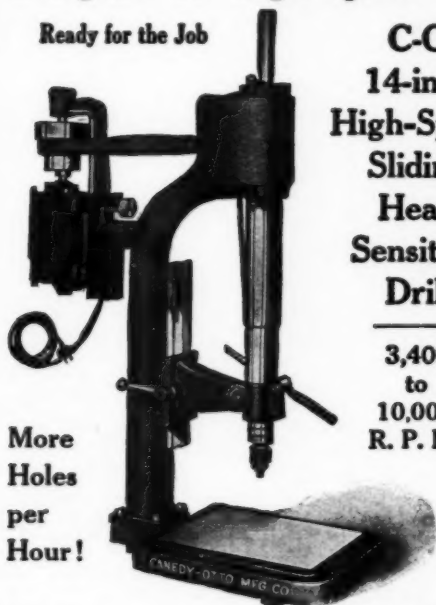
Designed for High Speed Work

Ready for the Job

C-O
14-inch
High-Speed
Sliding
Head
Sensitive
Drill

3,400
to
10,000
R. P. M.

More
Holes
per
Hour!



Total height, 41".
Vertical adjustment of head, 7½".
Diameter of spindle, 5/8".
Travel of spindle, 3¼".
Maximum distance of bottom of chuck
to base table, 10⅞".
Size of base table, 9½" x 12½".

Speed of spindle, 3,400-5,600-10,000.
Largest size of drill, 5/16".
Distance from column to center of sp. 7¼".
Size of sp. pulley, 1½"-2¼"-3" x 1¼" face.
Bench space, 15" x 20".
Net weight, 180 pounds.
Crated weight, 220 pounds.

Complete Information gladly furnished

Canedy-Otto Manufacturing Company

Main Offices and Factory—Chicago Heights, Illinois

New York Branch
407 Broome St.

Complete stock
carried at branches

San Francisco Branch
955 Folsom St.



*It Pays to
Specialize*

**SPEED
12,000
R. P. M.**

**No Vibration
No Heating**

*Ask for full
Information*

**Our
No. 1/2**

Avey

**BALL BEARING
DRILLING MACHINE**

is specially designed for very
light drilling where speed is
the essential rather than power.

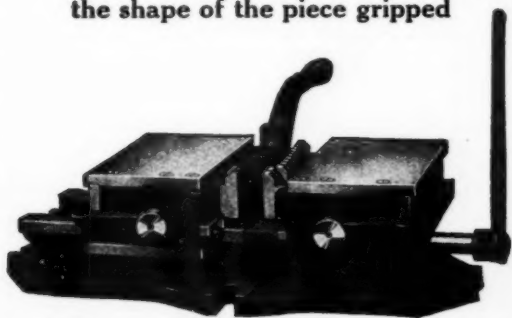
**Eliminates Twist Drill
Breakage**

because the drill cuts so fast
that feed pressure does not
break it.

**The Avey Drilling Machine Co.
CINCINNATI, OHIO**

What You've Been Looking For

A vise with jaws that assume
the shape of the piece gripped



Berjo

Machine and Bench Vises

Berjo vises have multiple compensating jaws which hold *regular* or *irregular* shaped parts positively and securely. The principle

is simple. A practical mechanical arrangement back of the jaws allows them to follow the contour of the work. Two main jaws, one fixed, one movable, hold the segmented compensating jaws. Berjo vises are suitable for all classes of work, but particularly adaptable to the tool room and the shop where a number of variously shaped pieces are going through.

Manufactured by the makers of Avey Drilling Equipment.

The Avey Drilling Machine Co.
CINCINNATI



Grand Rapids Combination Twist Drill & Tap Grinders

**Drills and Taps Sharpened
on a Grand Rapids Grinder**

**Cut Faster — Stay Sharp Longer
Produce More and Better Work**

BULLETIN ON REQUEST

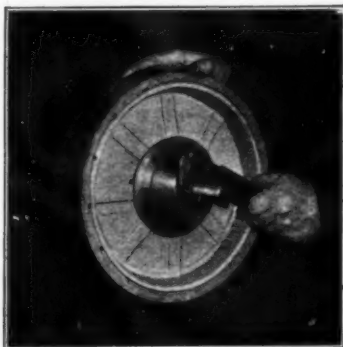
Gallmeyer & Livingston Co.
342 Straight Ave. S. W., Grand Rapids, Mich.

**ON or
OFF**

at the turn
of a wrench

EXPANSION

GRINDER-POLISHER



(Patent Applied For)

For
Efficient,
Uniform,
Economical,
Flexible
**GRINDING,
SANDING
and
POLISHING**

**A New Resilient Wheel That Does
Away with Glue, Loose Emery, Etc.**

NO

time lost waiting for glue to dry
uneven or unbalanced wheels
variation in diameters
spare wheels necessary

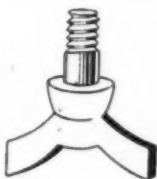
One EXPANSION GRINDER-POLISHER WHEEL, with an assortment of abrasive bands of various grits and types, will serve your every purpose. Just loosen ONE nut, slip on the band you wish, tighten the nut—and you're ready to start! No delays of a day or two waiting for glue to dry. Unexcelled for use on all types of metal castings and stampings, composition materials, tools, cutlery, parts, etc.

Write for Descriptive Folder and Prices

The Abrasive Wheel & Eqpt. Co.
1545 Jefferson St., Philadelphia, Pa.

Threading 1200 pieces per Hour

These brass wing
screws shown are
being threaded on
our



Standard High Speed Tapping Machine



*Let us show you what can
be done on your work*

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER

AGENTS

Hendrie & Bolthoff	Denver
F. E. Satterlee Company	Minneapolis
Herbert-Moore Machinery Co.,	San Francisco
F. F. Barber Machinery Co.	Toronto

LELAND-GIFFORD

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

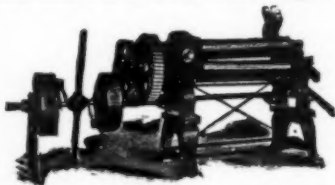
Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

BELOIT

Sheet and Plate Bending Rolls



Do More Work—Cost Less

The following letter tells How and Why

ANDERSON SHEET METAL WORKS
Chillicothe, Texas.

Feb. 2, 1929.

Hendley & Whittemore Co.,
Beloit, Wis.

Gentlemen:

Answering your inquiry regarding the No. 1-D Special 8' Bending Rolls furnished me about one year ago, wish to say that before I placed this order I had priced similar equipment from two manufacturers who specialize in sheet metal equipment and the fact that your machine was cheaper, and the forming rolls were about $\frac{1}{8}$ " larger, caused me to give this business to you. I have been well pleased with this "buy" as I have since seen one of the other machines in operation and find that my machine will handle heavier stock and to a smaller diameter than the competitive machine.

In fact will say that I am well pleased and really believe it worth as much more than the other machines as they ask over your price.

Very truly yours,

ANDERSON SHEET METAL WORKS

(Signed) Joe. H. Anderson

*Made in Initial Type, as shown above, or in Pyramid Type.
We also make various types and styles of Punches and Shears.
Write for Complete Descriptions.*

Hendley & Whittemore Co.

100 S. State St., BELOIT, WIS.

PUNCHES—SHEARS—BENDING ROLLS

**Taylor & Fenn Belt Driven
No. 12 Spring Press**



**UNIFORM BLOW
SPRING PRESSES**

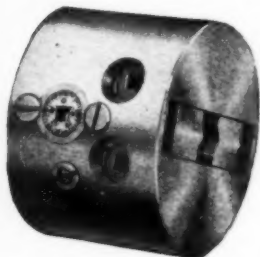
**Are made in
three sizes,
with either
single or
double action**

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of $3\frac{1}{4}$ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

**The Taylor & Fenn Co.
Hartford, Conn., U. S. A.**

FLYNN Micrometer Offset Boring Heads



**No. 20
Super-Boring
Head
Saves Time,
Material and
Expensive
Mistakes**

Accurate—Durable—Rigid

THE No. 20 Super Micrometer Boring Head is designed for heavy work on all heavy horizontal or vertical boring and milling machines. It is complete in every detail and is the last word in the manufacture of Boring Heads.

The head is compact— $7\frac{1}{2}$ in. in diameter, and $3\frac{1}{2}$ in. long. Having no projecting parts outside of shell makes it safe for the operator and eliminates any possibility of danger to job or head. It has very little overhang, which makes it rigid and gives maximum travel on all machines.

This head runs concentric and has an offset of 1 in., which in a complete revolution gives you a boring range of two in. from your original setting without changing the boring bar or fly cutter. Stop screw automatically locates jaws on dead center for drilling. Heads can be used with shanks or fitted to machines having threaded nose spindles. Dial is graduated in thousandths of an in., fifty thousandths to a turn.

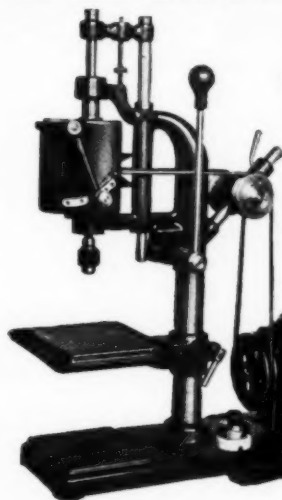
Send for Descriptive Bulletin and Price List

J. M. Waterston

426 Woodward Ave.,

Detroit, Mich.

**Now you can increase your production
and drill more accurate holes with**



**The NEW
VICTOR
Super-Drill
FIVE**

**Changes of speed with-
out stopping the drill or
touching a belt!!**

**Cut
Your
Drilling
Costs
50%**

VERSATILITY is the key-note of the VICTOR Bench Super-Drill. The exclusive patented adjustable pulley permits an instant change from 1600 r. p. m. to 2,200, 3,000, 3,800 or 4,250 r. p. m. without stopping the machine or touching a belt. Think of the time saving.

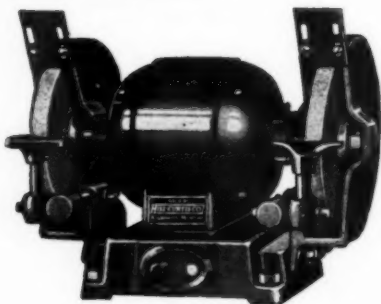
Ten Big Features

(1) Ball bearings in ALL revolving parts and end thrust; (2) Wonder pulley chamber and speed lever to regulate r. p. m.; (3) Standard Jacobs or Eisco chuck; (4) Spindle travel 2"; (5) Drill table absolutely level; (6) Positive spring belt lock; (7) Self adjusting belt; (8) $\frac{1}{4}$ h. p. motor, a. c. or d. c.; (9) Fully equipped with belt, switch, cord and plug; (10) Portable—weight only 65 lbs.

Write for Complete Description and Low Price

The Thompson Manufacturing Co., Inc.
60 India St., Boston, Mass.

NEW



6"-8"-10"
Bench and Floor
Type

ELECTRIC GRINDERS by **HILL - CURTIS**

Ball Bearing — High Carbon Steel Spindle — two pole,
Underwriter's Approved Switch—approved and adjustable
Wheel Guard—enclosed, over-size, and smooth running
Motor. A high grade Grinder, built to give continuous
service for that tool grinding or light production job.

Write for descriptive literature

HILL-CURTIS CO.
MAKING OF
POLISHING AND GRINDING MACHINERY
KALAMAZOO MICHIGAN

The KELLERFLEX

A Flexible Shaft Machine of a Hundred Uses.

Made in various sizes and types to meet every requirement.

Speeds from 875 to 10,500 R. P. M.

For Snagging, Burring, Lapping, Buffing, Polishing, Sanding, Drilling, Wire-Brushing, etc.

Non-Heating Shaft, Ball Bearing Hand-piece Ball Bearing Motor, Universal Swivel.

Complete Line of Accessories

**Rotary Files, Sanding
Drums, Emery Wheels,
Wire Brushes, Polishers, etc.**



Rotary Files—27 Shapes

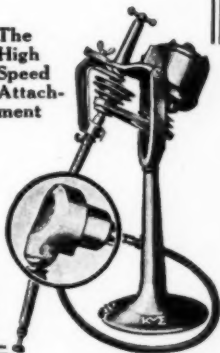


Sanding Drums



Wire Brushes

**The
High
Speed
Attach-
ment**



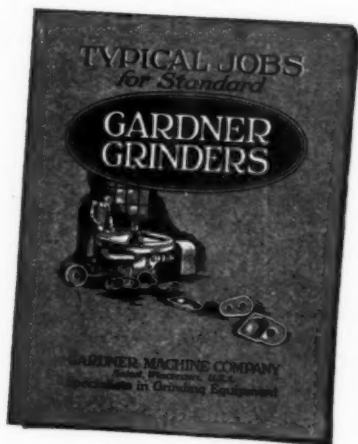
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in your line of manufacture*

**Keller Mechanical
Engineering Corp.**

KME

58A Washington St.
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Get YOUR Copy!



Here's a NEW 24-page booklet full of PRACTICAL DATA on production methods in shops similar to YOUR OWN.

Tear Out This Page and Mail It In !
No Obligation, Whatever.

NAME TITLE

FIRM

ADDRESS CITY

Gardner Machine Company
Near Wheeler Ave., Beloit, Wis., U. S. A.

Abolish Expensive Hand Finishing

with a



Simplex-A Abrasive Band Grinder

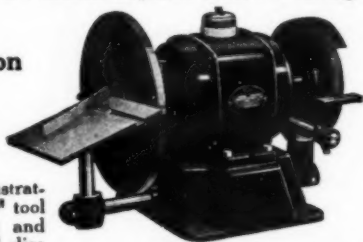
This grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. Details of this and other styles and sizes on request.

WALLS SALES CORP., 96 Warren St., New York

Winterhoff Portable Electric Grinders

Equipped with Timken Tapered Roller Bearings

No. 2-B Combination Tool and Disc Grinder



Complete, as illustrated, with one 8" tool grinding wheel and guard, one 12" disc wheel, one tilting table with protractor guard, toggle switch and cord fitted with attachment plug. Repulsion induction motor, $\frac{1}{2}$ h. p., single phase, either a. c. or d. c. Other models include the No. 1-B, an 8" or 10" Portable Grinder; and the No. 3-B, a Double-End Disc Grinder, 12" or 14" disc.

Write for Grinder Catalog, including Low Prices

Portable Electric High Speed Sensitive Bench Drill



No. 0 JUNIOR DRILL
 $10\frac{1}{2}$ " Swing, 0 to $\frac{3}{8}$ " Capacity

Positively the greatest value ever offered in a machine of this kind. Equipped with $\frac{1}{4}$ h. p. motor, two step cone pulley giving speeds of 1100 and 2300 r. p. m., horizontal drive gives full power to the $1\frac{1}{4}$ " endless belt. Driven cone has bearing support at each end; all parts accurately machined and interchangeable.

**We also make a line of portable,
electric Saws and Sanders**

Detailed Information Sent Upon Request

Winterhoff Tool & Machine Co.
109 South Elkhart Ave., Elkhart, Ind.

Illinois Plain and Surface Grinder

No.
11



Send for specifications of our No. 10 Plain and Surface Grinder—a general purpose grinder.

**With Hand
Feed Table
and
Cross Slide**

This machine has been designed to meet the demand of shops requiring an inexpensive grinder for surface grinding.

Special Features

Base: Box type construction with liberal bearing surface for knee, insuring accuracy.

Knee: Supported by elevating screw having ball thrust bearing. Hand wheel graduated in thousandths. Long bearing on column.

Spindle: Made of High Carbon Steel, heat treated, and runs in four Timken tapered roller bearings with adjustment collars to each

bearing. Also furnished with Bronze Bearings if desired.

Table and Cross Slide: Have dovetailed ways and tapered gibs. Table working surface 24"x6".

Countershaft: Ball bearing with tight and loose pulley and belt shifting device. Loose pulley equipped with two ball bearings.

Lubrication: Alemite system for spindle and countershaft.

Write for Complete Specifications and Prices

Illinois Machine & Mfg. Co.
LaSalle, Illinois

**Tap Breakage is Minimized
If You Use**

**THE
FREW
Automatic
TAPPER**

**No. 1
Capacity
to 1/2"**



*Timken Roller Bearing
Equipped*

Long bronze bearings, carried in Timken Roller Bearings, eliminate crooked tapping and tap breakage. The alignment is so perfect that tap withdraws from hole without the slightest chance of stripping the last thread. The FREW will meet your most rigid requirements on standard long run jobs—and on short runs too. Multiple heads and foot lever attachment may be secured.

Other FREW Advantages Include:

1. Permanent spindle alignment which is unaffected by tight belts.
2. Wide belt surfaces, giving greater power to spindle.
3. Simplicity of operation.
4. Ease of adjustment.
5. Elimination of "cocked" spindle.
6. Fewer parts.

*Write for complete information—and if you have any
production tapping problems, we'll be glad to help you*

THE FREW MACHINE CO.
124 West Venango St., PHILADELPHIA, PA.

A 30,000 R. P. M. Grinder Mounted In Tool Post Holder



This Grinder is an ideal portable tool that has a wide range of usefulness. It delivers the proper surface speed and power to small wheels, giving them maximum cutting capacity. Their principle of construction is ideal for high speed, viz; a centralized vibrationless drive with no wearing parts other than two ball bearings which are kept cold by exhaust air. The motor operates continuously at less than room temperature.

Onsrud Pneumatic Turbine Drive grinders are built in five sizes having speeds from 15,000 to 60,000 R.P.M. and can be applied to practically all makes of internal grinding machines. They are light in weight and ruggedly constructed. (The unit pictured above weighs only 6 lbs.) Onsrud Grinders are built for many purposes.

Send for complete illustrated literature

Onsrud Machine Works, Inc., 3906-32 Palmer St., CHICAGO, ILL.

Type RF-M4 Machine



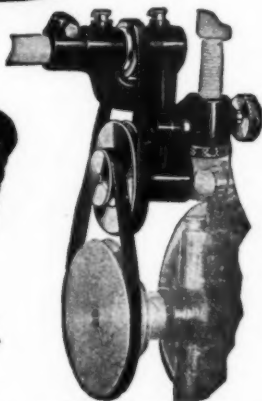
Strand

Capacity— $\frac{1}{4}$ H.P.

For
Rotary Filing
Grinding
And
Polishing

10,000 R. P. M. Attachment
Furnished Extra
when Required. See
Illustration.

Attachments



N. A. STRAND & CO.

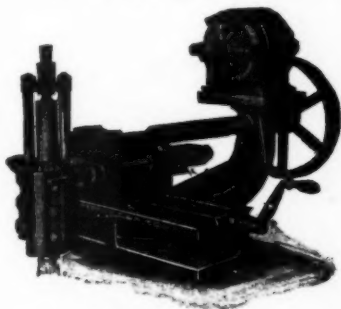
Manufacturers

5001 No. Lincoln Street
CHICAGO

PATENT APPLIED FOR

Without a Pedrick
Portable Milling Machine

**You Often Pay Its Price
In Delay On One Job**



To appreciate its value just add the savings you could effect in a year by taking this handy, ever-ready tool to the job instead of bringing the job to the tool, then subtract the price. Result—net earning power.

You need this Pedrick Miller to do those big jobs that your standard machines cannot handle.

Catalogue explains all its various operations—a comprehensive book of reference and key to manifold savings. Your copy is waiting—shall we send it now?

Pedrick Tool & Machine Co.

Headquarters for Portable Machine Tools
Boring Bars, Crank Pin Turners, Pipe Benders, etc.

3644 N. Lawrence St.,

Philadelphia, Pa.

**When it
Comes To
Rubbing
Filler—Try**



The

Nedco

**Sanding and Polishing
Machine**

**It Will Save You Time and Money
and Do A Better Job**



The NEDCO is built for strenuous service, and uses any standard 9¼" abrasive disc. Weight 12 lbs.

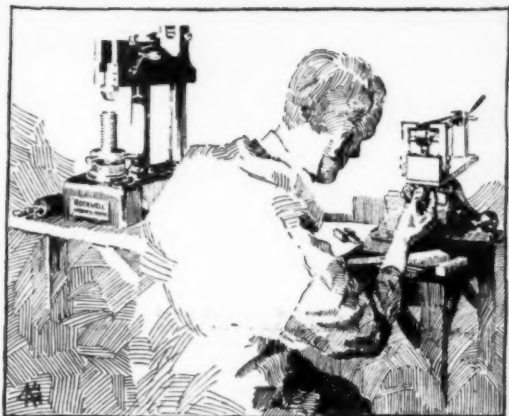
Equipped with ¼ HP universal motor either 110 or 220 volts—working speeds
Model "N" 1750 R. P. M.
Model "S" 850 R. P. M.

**Price \$85.00 F. O. B.
NATICK**

Write for Descriptive Circular

**THE NEDCO
COMPANY**

**Dept. H
NATICK, MASS.**



Rockwell Hardness Tester

manufacture is toolmakers' work and the Rockwell is a combined press, weighing machine and micrometer.

It is not a press with only weighing and measuring attachments but is designed and built throughout to be all those things and that is why it stands up so splendidly to its job.

WILSON-MAEULEN **CO**
INCORPORATED

735 East 143rd Street,

New York



—ABBOTT—
Burnishing Material
for
Permanent Satisfaction

BALLS—glass hard, mirror finished and heat treated for toughness form the basis of all good ball burnishing.

Abbott burnishing balls have these essential qualities—made possible by twenty years of manufacturing experience. Abbott cones, pins and slugs, used to supplement the action of the balls on irregular surfaces, are scientifically designed for greatest efficiency.

The Sample Kit includes a full assortment.

Ask for it!

The Abbott Ball Company

"Originators of Commercial Ball Burnishing"

1043 New Britain Ave., Hartford, Conn.



**TWO Machines
for the Price of ONE!**

The RHODES Shaper and Slotter

A few turns of a wrench converts the RHODES into either an efficient shaper, or fast, accurate slotter. It will do keyseating, shaping, slotting, die making and intricate work of many kinds with *only one set-up* of the work. Within its range it will exceed the capacities of larger and more expensive single operation machines. Maintenance and operation costs are exceedingly low. It will pay you to investigate the RHODES.



**"The
Handiest
Tool in the
Shop"**

—
**7 in.
Shaper
Stroke**

—
**3½ in.
Slotter
Stroke**

*Ask your dealer or write for
CATALOG H22*

The Rhodes Mfg. Company
944 Park Road, Hartford, Conn.

SHAPERS—RHODES—SLOTTERS

KRW Hydraulic and Sensitive ARBOR PRESS

**Gives All-Around
Efficiency at very
Low Cost**

THE latest improved combination KRW Hydraulic and Sensitive Arbor Press includes many improvements not found in any other press, at any price.

35 TONS CAPACITY

Hydraulic pressure easily operated by one hand controls movement of ram to one-thousandth of an inch movement. Automatic air vent and pinion brake holds ram at any height when not in use.

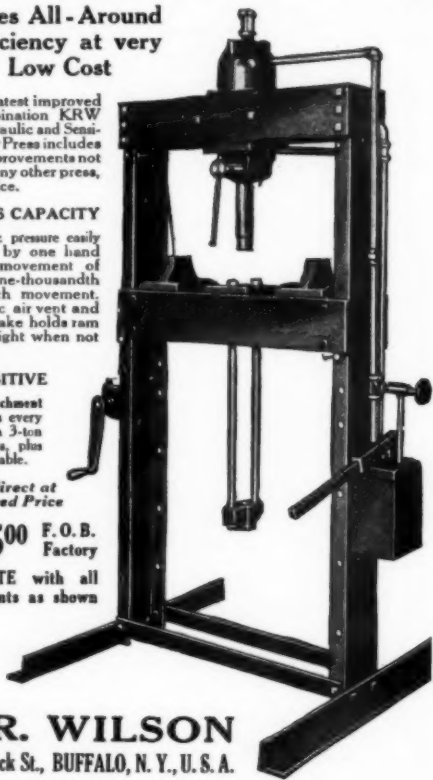
SENSITIVE

Press Attachment incorporates every feature of a 3-ton bench press, plus adjustable table.

*Sold direct at
Reduced Price*

\$115⁰⁰ F.O.B.
Factory

COMPLETE with all
Attachments as shown



K. R. WILSON

10-14 Lock St., BUFFALO, N. Y., U. S. A.

**K. R. Wilson Shop Equipment Sales Co., Los Angeles, California
Export Department: 126 Liberty St., New York City**

Rigidity—Power—Economy

Are Combined
In This

1-Man 4-Post Screw Press



Type BB

So powerful is this machine that your tool-maker will require no help in handling any dies.—Its perfect alignment, its delivery of 80 tons pressure, and the simplicity of its operation, enable one man to do more work in less time than two men can do on any other type of screw press.

Also three smaller sizes

A Surface Grinder

that is a revelation in quiet efficiency. Its rigidity insures accuracy; feeds have graduated dials—runs silently without chatter.

Details and price on request

**JARECKI MACHINE
AND TOOL CO.**

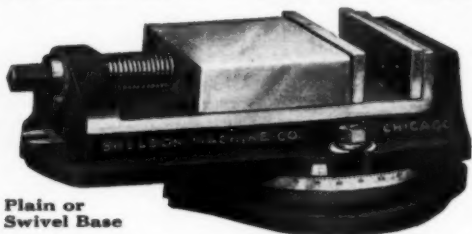
Department A

GRAND RAPIDS,

MICHIGAN



SHELDON MILLING MACHINE VISES



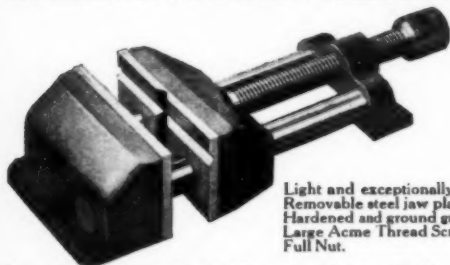
Plain or Swivel Base

The swivel vise is the plain vise with the addition of a circular base, graduated in degrees. It can be removed from the circular base and used as a plain vise if desired.

Specifications and Prices

No.	Width Jaws	Depth Jaws	Jaws Open	Plain Vise		Swivel Vise	
				Weight	Price	Weight	Price
3	3½"	1½"	2½"	15 lbs.	\$16.00	25 lbs.	\$20.00
4	4½"	1½"	3½"	30 lbs.	\$20.00	45 lbs.	\$24.00
6	6½"	2"	4½"	70 lbs.	\$30.00	90 lbs.	\$40.00
8	8½"	2½"	6½"	160 lbs.	\$45.00	225 lbs.	\$60.00

SHELDON DRILL PRESS VISE



Light and exceptionally strong.
Removable steel jaw plates.
Hardened and ground guide bars.
Large Acme Thread Screw.
Full Nut.

No.	Width of Jaws	Depth of Jaws	Jaws Open	Weight	Price
D-4	4½"	1½"	4"	15 lbs.	\$12.00
D-6	6½"	1½"	6"	35 lbs.	\$18.00
D-9	9"	2½"	9"	70 lbs.	\$24.00

SHELDON MACHINE CO. 3250 Cottage Grove Ave., CHICAGO, ILLINOIS

JUST 1 SET OF 12 Champion Expanding Mandrels

Will fill by thousandths any inside
diameter from $\frac{1}{2}$ " to $6\frac{1}{2}$ "



So Simple—only two parts.

So Handy—always ready for any job.

So Efficient—dependable for precision accuracy.

They are suitable for all classes of work, large or small, in all kinds of metal. They hold work of any length of bore and do not chatter. They are lighter, more easily handled, and keep truer than common mandrels. They release work easily. And the grinding of all parts after hardening insures the greatest accuracy. The cost is only about one-fifth that of solid arbors of equal range graduated by sixteenths.

Our Catalog also describes

Champion Tool Holders, Champion Emery Wheel Dressers, Machinists' Vises and Clamps, etc., and our large line of practical, hard-to-beat Shop Furniture. Copy upon request.

The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

Etchograph

Trade Mark



Patented July 8, 1918
Patent No. 1,309, 160

For Fine Tools—

Or for heavy work, no other marking machine can equal the ETCHOGRAPH. The six stages of heat enable you to regulate the current so as to obtain six variations in size of marking—an exclusive feature. Easy to operate as a lead pencil—no acids, no elaborate preparations. Marks any material—iron, steel, steelite—with savings in time alone of 80%.

Write for complete details, stating power available

WILLIAM BREWSTER COMPANY
50 CHURCH ST., NEW YORK

THE BULL DOG

$\frac{1}{2}$ "
Heavy
Duty

\$48



Universal
Current

Let's Send You 16 Reasons
why BULL DOG DRILLS
Are the BEST

Week's
FREE Trial

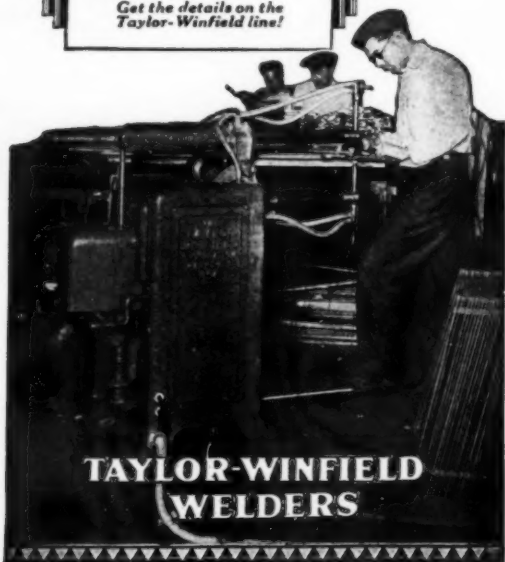
*If your dealer can't supply you, we'll
gladly send you a biting BULL DOG
Drill for a week's rough-house test.*

National Electric Products Co.
Dept. H. 148 Baxter St., New York, N. Y.

Improves *Your* Product

Not only will Taylor-Winfield electric welders simplify and economize production but they improve the product welded, thus affording added profit per unit manufactured.

*Get the details on the
Taylor-Winfield line!*



**TAYLOR-WINFIELD
WELDERS**

THE TAYLOR-WINFIELD CORP.
WARREN, OHIO



*Guaranteed
fool-proof
and durable.*

*Used on A. C.
light circuit.*



View of Etching Pencil
Marking and Demagnetizing
in same operation.

Luma Combination Electric Etching and Demagnetizing Instrument

Easy to use as a lead pencil

A time and labor saving tool that functions equally well permanently marking expensive high speed steel tools and demagnetizing large or small ones.

Always instantly ready without fuss or muss

Operation symbols plainly and permanently marked on tools saves time and spoiled work and speeds production.

Luma Electric Equipment Co.

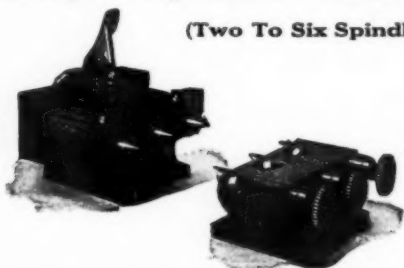
P. O. Box No. 132 Main Office,

Dept. H.

TOLEDO, OHIO

Multiple Spindle Centers

(Two To Six Spindle)



Three Spindle Heavy Duty Centers

The spindles are indexed quickly and simultaneously by a ratchet lever movement, and provided with a large dial and lock bolt. Binders are provided for the spindles. The gearing is protected. The tail spindles have independent screw adjustment and independent binders, and the centers of the tail spindles are on the upper side of the spindles, so that cutters may pass close down to the center on small work. Can be furnished with tilting table.

Center Dist. of Spindles	Swing Over Slide	Length Between Centers	Weight Lbs.	Use Code
3 $\frac{3}{4}$ "	8 $\frac{3}{4}$ "	19" on 36" slide	175	Bore

Mr. User of **GARVIN** power milling machines of all types including dividing heads and all attachments, also **GARVIN** screw machines and grinders: if you are looking for new machines or attachments or repairs on above, call on us and we will take care of your requirements promptly.

Manufacturers Of

Double end horizontal drills, milling machines and attachments, milling machine vises, dividing heads, index centers, single and multiple spindle, hand screw machines, cutter grinders, screw slotters, hand lathes, collet chucks, oval chucks, rotary tables, hex square milling fixtures, air devices, oil pumps.

WRITE FOR CATALOG

JOHN B. STEVENS INC.

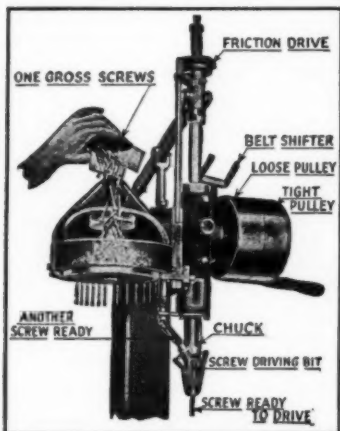
25 Cleveland Place,

New York City

SAVE 65 to 85%

ON YOUR

Screw Driving Costs



**With
the
Reynolds
Automatic
Screw
Driving
Machine**



Showing Magazine Feed of the Reynolds Automatic

One Reynolds Screw Driving Machine

Will replace from 3 to 6 hand operators, drive from 8,000 to 16,000 screws per day, reduce your assembling costs, increase your production, give superior workmanship, as well as increase your profits.

Anybody can operate the Reynolds—just dump a gross of screws in the hopper, press a foot lever, (the hands are left free) and a screw is driven instantly to any desired depth.

Write for facts and figures, giving dimensions overall of your work, and length and gauge of screws used.

The Reynolds Machine Company
Dept. H. H., Massillon, Ohio

**\$1.00 Saved Per Day Means
\$300. Per Year**

**Follow The Tool Economy of
Over 6000 Unishear Users**

Unishear Cuts Your Cutting Cost in Half

THE MIGHTY MIDGET



**Weight
6½ lbs.**

1-4 H. P. (182W) Universal Motor

Capacity: 16 U. S. Gauge (0.50") Steel.

Price: \$75.00, 110 volt.

\$75.00, 110 volt.

*A MIDGET in size—a GIANT in power. Built with the
precision of a watch and the ruggedness of a Pile Driver.
Easier to handle than a pair of snips.*

The  **Line**

**Includes many other models in heavier machines for cutting sheets up
to ¼" boiler plate, all built on the famous Unishear principle.**

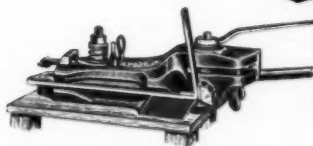
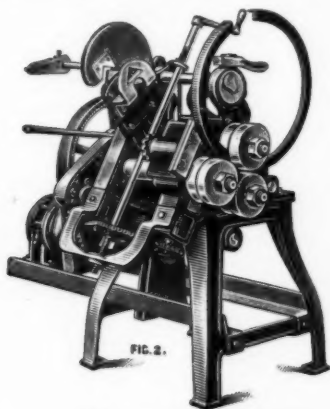
Complete Catalog sent on request.

The UNISHEAR CO., Inc.

Main Office & Factory, New York, N. Y., 176 Lafayette St.

EXCELSIOR

Circular Angle Bending Machine No. 14



Band and Angle Iron
Forming Machine No. 13



Mfgs. of Shearing and Punching Machines,
Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co.

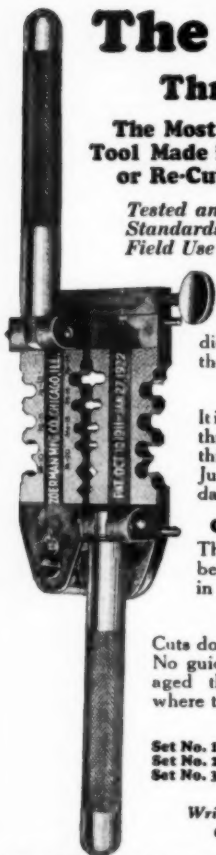
East St. Louis, Illinois

The Zoerman

Threading Tool

**The Most Practical and Compact
Tool Made for Cutting New Threads
or Re-Cutting Damaged Threads**

*Tested and Approved by Bureau of
Standards and accepted for Shop and
Field Use in the United States Army*



Always Ready for Use

The Zoerman is assembled at all times, ready for use instantly. No dies to misplace or lose—any size is there to use when you want it.

No Backing Off

It is not necessary to back off after the thread is cut with the Zoerman—this means longer life to your dies. Just unlatch it—and off it comes. No danger of stripping threads.

Cuts Tight or Loose Threads

This is easily done with the Zoerman because it has positive adjustments in 64ths, 32nds and 16ths of an inch.

No Guides Needed

Cuts down to shoulder without exertion. No guides necessary for re-cutting damaged threads—simply clamp tool on where thread is perfect and run off.

Set No. 1 Cuts from $\frac{1}{4}$ " to $\frac{3}{4}$ "	} S. A. E. or U. S. Std., Taps, Dies, Tap Wrench
Set No. 2 Cuts from $\frac{1}{2}$ " to 1"	
Set No. 3 Cuts from $\frac{1}{4}$ " to $\frac{3}{4}$ "	

*Write for Illustrated Folder giving
Complete Details and Prices*

ZOERMAN - CLARK MFG. CO.
225 W. Huron St., Chicago, Ill.

Scratch Awl & Drift Pin



Drop Forged—Alloy Steel—Hardened

No. 5. Jr. Punch



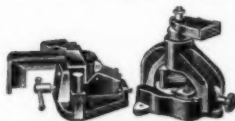
Capacity $\frac{1}{4}$ " thru 16 gage
Weight 2½ lbs.

No. 0. Solid Set



Made from High Grade
Tool Steel

No. 50 Angle Iron Mitre Notcher and No. 51 Angle Iron Bender



Capacity will shear Mitre in
2"x2"x¼" Angle Iron.

Weight of Mitre Notcher 55 lbs
Weight of Mitre Notcher Bender 43 lbs

No. 16. Roller Bearing Punch



Operator works
in front of
machine.

Can be
furnished
with or
without
work table

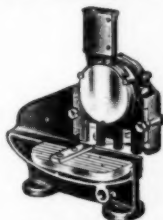
Capacity $\frac{3}{8}$ " thru $\frac{1}{4}$ "

Hollow Punch Set



Self Centering Locating Spring Point.
Made in 3 sizes.

No. 6 Slitting Shear



Roller Bearing
Cap. $\frac{3}{16}$ " Thickness, Throatless
Drop Forged

Write for Catalog on Entire Line

WHITNEY METAL TOOL CO.

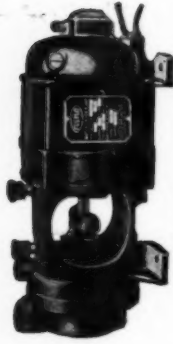
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GRINDER PUMP



VOLUME PUMPS



MOTOR DRIVEN UNITS
1/4 to 5 H. P. 5 to 75 G. P. M.

FULFLO delivers coolant in volumes which promotes efficiency in cutting tools.

The full, copious flow from the Fulflo is needed to make the best tool, with the best coolant, most effective.

FULFLO does not clog, therefore it always

works. It's the trouble proof pump.

No machines stopped to unclog pump. All the chips you can get into it pass through without harm.

FULFLO has longest life because its only pumping part does not wear.

MANUFACTURED BY

FULFLO SPECIALTIES CO., BLANCHESTER, OHIO

"GUSHER" COOLANT PUMPS



Model T-L-O

Equipped with $\frac{1}{4}$ h. p. motor, has $\frac{1}{4}$ " inlet and is set vertically outside of pan. Delivers 18 gal. 3' high; 13 gal. 6'; 10 gal. 9'; 8 gal. 12'; 3 gal. 20'.

Model T-L is identical in capacity and equipment save that it is immersed in the reservoir and is able to pump over 20' high through $\frac{1}{2}$ " discharge with 10 lb. pressure. Ideal for deep hole drilling or boring.

ARE
Centrifugal
Vertical
Ball Bearing
Perfectly Balanced
Reliable
Easily Installed
Long Lived

"GUSHER" Coolant Pumps are the simplest and most efficient pumps made. They give an instant and easy flow without air bubbles or pulsations. Deep grooved ball bearings, automatic oiling and sufficient clearance for passing chips, grit and abrasive matter through without injury to the mechanism—all these aid in efficient, effortless performance.

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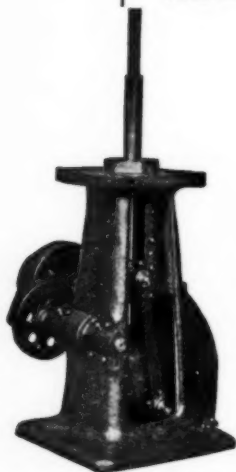
and many sizes, of all desirable capacities, with individual motor or belt drive, "GUSHER" Coolant Pumps are ready to serve you.

*Send for the Complete "GUSHER" Catalog listing
the various models with capacities of
from 12 to 75 gallons per minute*

The Ruthman Machinery Co.
528-534 E. Front St., Cincinnati, Ohio

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With the NEW Catlin No. 1



*Rapid
Simple
Durable
Efficient
Accurate
Economical*

The Catlin Keyseaters are popular because they are profitable—they have made good in machine shops of every size, as well as automobile plants, government shops, navy yards and many foreign factories.

Nos. 0, 1 and 8 Keyseaters have the crank motion, while all other sizes have the rack and pinion drive.

All Catlins are thoroughly efficient, and help to lower shop costs. The picture shows our No. 1 Keyseater.

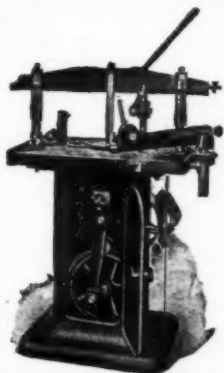
Let us send you the large folder, which gives full details of construction and operation, and also some

Very Interesting Production Records!

Chattanooga Machinery Company

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SIMPLICITY and



EASE of OPERATION

Insure

**Accurate
Rapid and
Low Cost
Production
If You Use
the**

No. 1 cuts from 1/16 to 1-inch

DAVIS KEY- SEATER

THE DAVIS KEYSEATER cuts keyways in pulleys, gear blanks, bell cranks, crank handles, etc., and does oil grooving and slotting accurately and economically. Equally profitable on standard quantity production or on mixed runs. There are no complicated parts to get out of order, setting-up is extremely easy and operation is so simple that your youngest apprentice can handle it without any trouble. Made in two sizes.

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SALVAGE

**YOUR HARD TEMPERED
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Band Saws
Hack Saws

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IT COSTS **2¢** *To Sharpen* **5¢** *A Band or*
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**two saws and we will resharpen them for you
FREE OF CHARGE**

REDUCE YOUR SAW PURCHASES

90%

SAVE TIME AND SAVE MONEY

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Manufacturers of the largest line of Saw Filers made in U. S. A.

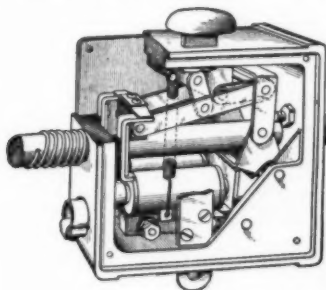
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SIMPLEX SAFETY STOP MOTIONS



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Production
demands efficient
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Any common
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can be used by
the J. & B.
up to a 12"
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bastard — any
shape.

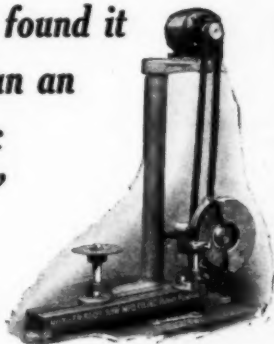
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absolute vertical
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doing away with
the necessity of
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faster than an
automatic
machine"***

Patent Pending



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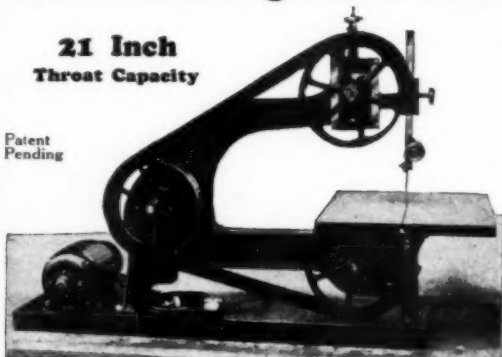
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The NEW Three Wheel Metal Cutting Band Saw

**21 Inch
Throat Capacity**

Patent
Pending



For Economical, Efficient Operation

HERE is the newest contribution to high grade and low cost production! A portable, bench type band saw which retains the good features of conventional design, yet introduces an amazing improvement in construction. The throat capacity of 21" and opening of 9" permits sawing to the center of a 42" circle. Substantial, durable, vibrationless it has the operating ease and handiness of a small tool.

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The Marvel Metal Band Saw No. 8



Investigate and Know—

why many well known plants are so completely satisfied with results obtained on the Marvel Metal Band Saw No. 8.

Among other advantages it offers ball bearing band wheels, ball bearing blade guide rollers, ball bearing blade frame carriage, big roomy bed or work table, three cutting speeds, a pump for projecting cutting compound—increasing blade life—a cut stop that can be set at any point desired, NEW adjustable blade pressure that indicates the feed pressure on the blade in POUNDS, and the ability to cut at any angle to 45°. Capacity up to and including 18".

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Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

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Exclusive territory being allotted—representatives and dealers interested, please write.

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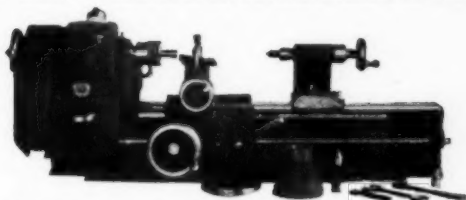


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A 9" Geared Head Lathe for manufacturing plants, tool rooms, industrial plants, schools, service stations, homes and jobbing shops.

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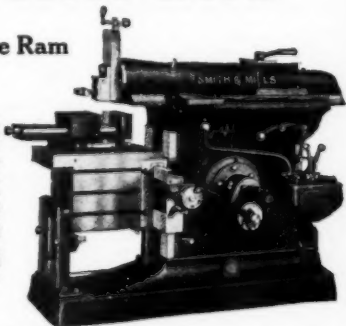
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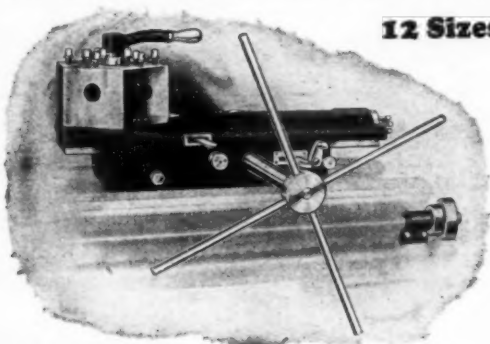
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12 Sizes



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Micrometer Adjustment



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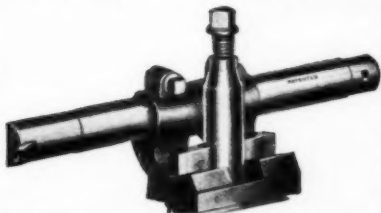
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Bars are held rigid, insuring heavy cuts and faster speeds.

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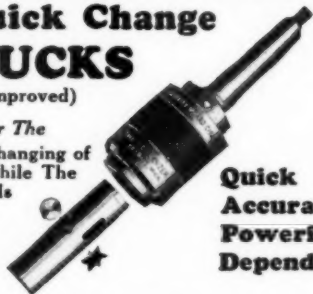
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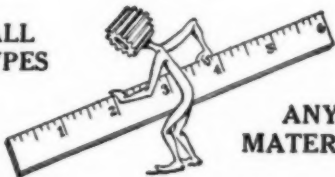
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TYPES



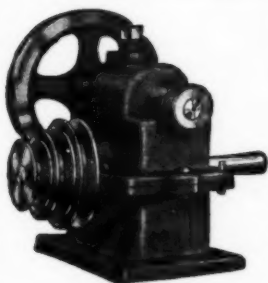
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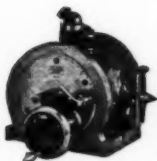
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Insuring Precision Work

In the Racine Shear Cut Production Saw a new feed principle eliminates all blade distortion, with the resulting inaccuracies. The blade is drawn into and through the stock in steady, even cutting strokes.

Many prominent manufacturers and metal working shops use the Shear Cut in preference to all others, in some instances replacing two to four other saws. Write for complete information and a FREE cutting chart.

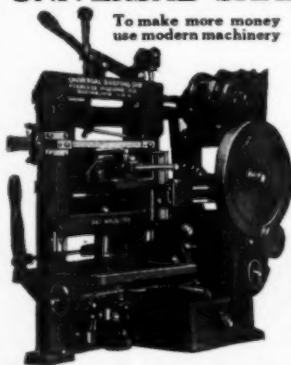
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To make more money
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Different Principles
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HIGH SPEED HACK-SAWS

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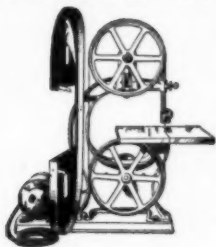
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Semi Steel Frame 12x14,
45° Tilt Top Table
V belt and pulleys **\$35⁰⁰**

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No wonder that mechanics and metal workers throughout the country are pushing the new Victor High Speed Steel Hack Saw Blades, increasing the demand day after day. Never before has a hack saw blade so completely answered their every need in cutting requirements.

A trial will convince you

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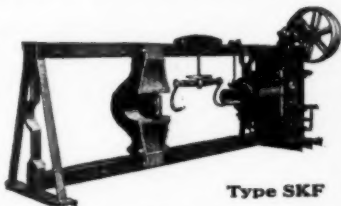
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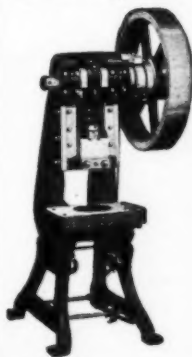


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They are built to pro-
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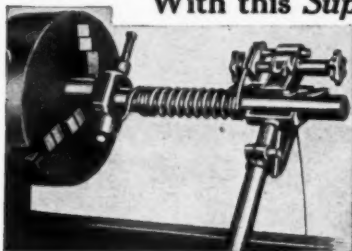
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**ON LATHE
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justing screw with
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Capacity—, hair

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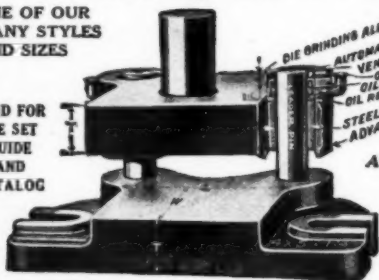


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from stock, standardized,
interchangeable die sets—a
type and size for every need.
Special die sets built to speci-
fications or designed to
meet requirements. Send
for Danly Catalogue—
The Manual of the Met-
al Stamping Industry.
used by over 14,500 de-
signers, etc.



Danly Machine Specialties, Inc.

2116 S. 52nd Avenue, Chicago

Detroit, Mich., 1549 Temple Ave.

Long Island City, N. Y., 36-12 34th St.

Analysis of Circulation of HITCHCOCK'S MACHINE TOOL BLUE BOOK

By Dun and Bradstreet Ratings

To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at—

Exceeding \$1,000,000.....	1,853
\$500,000 to \$1,000,000.....	1,381
\$300,000 to \$ 500,000.....	1,358
\$200,000 to \$ 300,000.....	1,137
\$125,000 to \$ 200,000.....	1,555
\$ 75,000 to \$ 125,000.....	1,763
\$ 50,000 to \$ 75,000.....	1,372
\$ 20,000 to \$ 50,000.....	3,132
\$ 10,000 to \$ 20,000.....	2,024
\$ 5,000 to \$ 10,000.....	1,722

TOTAL to Private Concerns of over \$5,000.. 17,297

Steam and Street Railway Mechanical and
Purchasing Officials, Government and Mu-
nicipal Plants, Technical Schools, Selected
Foreign Dealers and Users, Etc.,..... 2,927

TOTAL to Buyers of Known Responsibility.. 20,224

*Concerns quoted in Dun or Bradstreet, but
without Capital Rating..... 2,652

Concerns not yet in either Dun or Bradstreet,
which includes new industries..... 1,514

Concerns rated below \$5,000 1,188

TOTAL CIRCULATION 25,578

*This group includes a considerable number of large concerns, and some small ones of high credit, whose capital rating is not given by either of the commercial agencies.

FOR the purpose of advertising machine tools and shop equipment the BLUE BOOK is unique. There is nothing else like it. Where else can you find anything to equal it in its combination of

COVERAGE
DIRECTNESS
HANDINESS
EFFICIENCY
and
ECONOMY



*Rates upon application to Hitchcock Publishing Co.,
508 S. Dearborn St., Chicago*

CAD
Standardized
set-up appliances

Why force your men to waste time on machine tool table set-ups when CAD standardized appliances will convert this non-productive time into productive labor?

**STANDARD SHOP
 EQUIPMENT CO., Inc.**
Set-up appliances for machine tools
 8135 Tincum Ave., Phila., Pa.

Towsley Trucks PAY 500%

—Every Year on
 Their Cost Price



Many Sizes and Styles
 from \$10 up.

Glad to tell
 you how

**TOWSLEY
 TRUCKS**

repay their
 cost every
 two to three
 months.

Every style
 for every
 need.

Write for facts and figures; you'll never regret it

**John T. Towsley Mfg. Co., Cincinnati,
 Ohio, U. S. A.**

T.H.L. Front Lever Bench Punch

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work. Weight 70 lbs.

PRICE \$40

Extra Punches, 20 cents each;
extra dies, 30 cents.

Capacity $\frac{1}{2}$ " holes through $\frac{3}{16}$ " steel; $\frac{13}{32}$ " through $\frac{1}{4}$ " steel.
Punches and dies in stock from $\frac{1}{8}$ " to $\frac{1}{2}$ ".

Immediate shipment from stock

**T. H. LEWTHWAITE
MACHINE CO.**

(Est. 1890)

311 E. 47th St., NEW YORK

GITS BROS

Better Oilers

287 Styles & Sizes

GITS BROS MFG. CO.
1940 S. Halsted Chicago



Hercules Shears and Rod Cutters

are the most powerful hand tools on the market. Made in several styles for bench and floor mounting. Capacities: Rod 1-8 to 3-4 in. diameter; sheet 1-16 to 6-16 in. thickness.

TUCKER OIL CUPS and OIL HOLE COVERS

COMPACT — DURABLE — ECONOMICAL
A Style and Size for Every Purpose

Easily closed by twist of fingers or self-closing. This feature means a dust- and grit-tight cup and prevents oil throwing during machine operation.



Send for Catalog No. 13 and Samples

W. W. & C. F. TUCKER, INC.

612 Capitol Ave., Hartford, Conn.

FOREIGN AGENTS: Fenwick Freres & Co., Paris, France.

Buck & Hickman Ltd., London, England.

Alfred Herbert Ltd., Yokohama, Japan.

One

40" Tolhurst Chip Wringer—

Will replace from three to six small machines—require but one operator and thus—

- Cut your cutting oil budget
- Cut down labor cost
- Cut down power cost and investment.

Write for Catalog Today

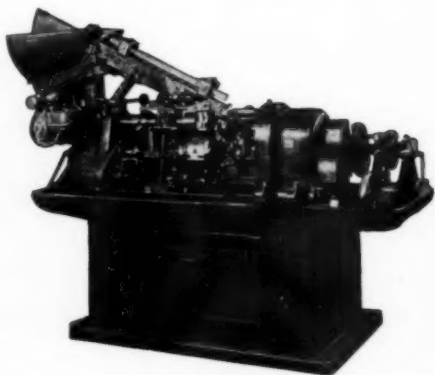
Tolhurst Machine Works, Inc.

TROY, N. Y.

New York Office: 30 Church Street
Chicago Office: 8 So. Dearborn St.



Combined Automatic Pointing and Threading Machines

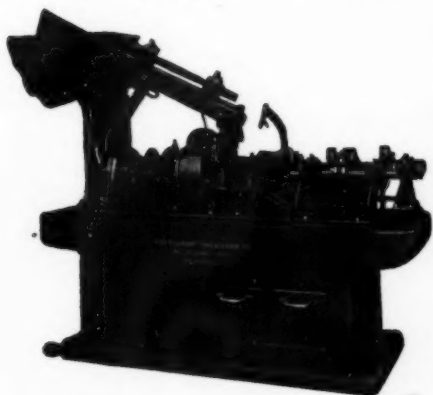


For Bolts and Cap Screws
Capacity— $3/16$ "x1" Diameter
1" to 6" Long

Write for Full

THE ECONOMY ENGINEERING

Automatic Shaving Machines



Shaves top and underneath
head of Cap Screws
Capacity $\frac{1}{4}$ " x $\frac{3}{4}$ " Diameter
 $\frac{3}{4}$ " to $5\frac{1}{2}$ " Long

Information

COMPANY, - Willoughby, Ohio

"More Holes Per Dollar"

"Buffalo"

A complete line of motor and belt driven drills, 10 in. to 25 in., backed by over 50 years' tool making experience.

Write for Catalog, 830-C

Buffalo Forge Co.

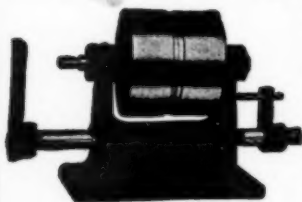
161 Mortimer St., Buffalo, N. Y.

In Canada: Canadian Blower and Forge Co., Ltd., Kitchener, Ont.



BURKE

Profitable Light Tapping

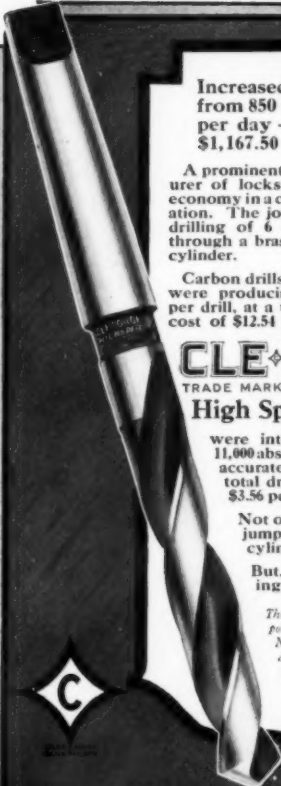


Practically automatic, Burke Tapping Machines set a fast production pace on a wide range of light reaming, lapping, burring, counter-sinking, assembling and similar jobs. Their output is governed by the operator's feeding speed, and clean, accurate threads are assured at all times by an adjustable stop that prevents tapping to the bottom of blind holes.

All details sent on request

The Burke Machine Tool Co.

297 E. 16th St., Conneaut, Ohio, U. S. A.



**Increased Production
from 850 to 2600 pieces
per day — And saved
\$1,167.50 per year!**

A prominent Eastern manufacturer of locks demanded greater economy in a certain drilling operation. The job consisted of gang drilling of 6 close-spaced holes through a brass pin tumbler lock cylinder.

Carbon drills, No. 31 wire gauge, were producing about 400 holes per drill, at a total drill and press cost of \$12.54 per 1,000 cylinders.

CLE◆FORGE

TRADE MARK REG. U.S. PAT. OFF.

High Speed DRILLS

were introduced, produced 11,000 absolutely uniform and accurate holes per drill, at a total drill and press cost of \$3.56 per 1,000 cylinders!

Not only was production jumped from 850 to 2600 cylinders per day—

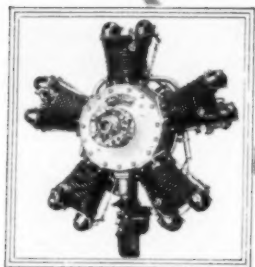
But, the net annual saving was \$1,167.50.

This complete performance report is contained in Digest No. 56. You will find it absolutely interesting. Shall we send you a copy?

C

The CLEVELAND

**TWIST DRILL
COMPANY
CLEVELAND
NEW YORK CHICAGO LONDON
SAN FRANCISCO**

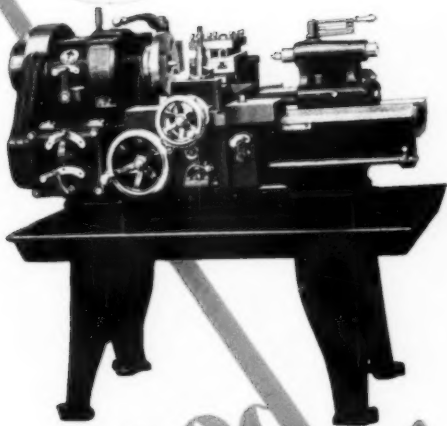


Records Broken

LeBlond lathes and LeBlond aircraft engines have established records in their respective fields. Both built for speed, under the highest standards of accuracy and precision.

The lathe illustrated is our 11" Rapid Production, a time saver on work to be turned and faced simultaneously.

THE
R. K. LeBLOND MCH. TOOL CO.
Cincinnati, Ohio



speed

For Production Work— Screw Driving—Nut Setting—Use

Type
"G"



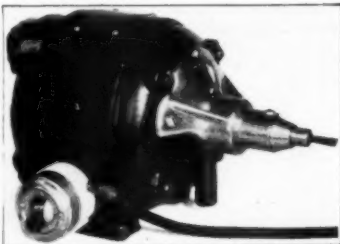
VIM TOOLS

Portable
Electric
Versatile

TYPE "G" VIM Tool has flexible shaft with Universal Motor, and is a very handy machine for small screws up to No. 6. Tool weighs only 12 ounces. Excellent for use in out-of-the-way places.

Type "D"

This machine can be screwed in any handy place, for use on small electric jobs such as plugs, sockets, etc. Just push the work on the bit or socket—VIM drives it up in jig time,



Among other types is the Bench Machine—Type "C"—used with or without foot pedal, just the tool for production work.

NOTE—In all types, the bit does not rotate until the screw is applied.

Send for Circulars and Prices

Vim Electric Tool Company
149 Broadway, New York City

**For External, Internal and Surface Grinding
on any Lathe from 14-inch swing up**



"ATLANTIC" Precision Lathe Grinder

ACCURATE:—The ATLANTIC is remarkably accurate due to its excellent construction. It makes no chatter marks for the belt pull is equally divided and the whole machine is exceptionally rigid.

DURABLE:—Made by master machinists, with care and exactitude, the ATLANTIC is a "tailored" job from start to finish. Either assembled or separated into its component parts, it will stand the closest inspection even after years of service.

VERSATILE:—Not only does it do external, internal and surface grinding on any lathe from 14" swing up, but it can be used on shaper or planer as well to do long surface grinding. Users are constantly discovering new kinds of jobs that it can do.

ECONOMICAL:—The ATLANTIC provides you with the best grade of precision grinding service and heavy duty and accurate work, without a large investment, for the ATLANTIC sells for one-third less than its nearest competitor.

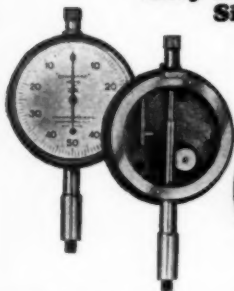
THREE DAYS' TRIAL—NO EXPENSE TO YOU

Write for Illustrated Folder and Low Price

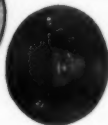
The Kern Electric & Eng. Co., Inc.
1092 So. Orange St., Newark, N. J.

Standard Dial Indicator

**Easy Reading—Long Lived—
Simple—Accurate**



Note the few parts, the sturdy construction and simplicity of this new "STANDARD" Indicator. Built of the finest materials, with large, easy-to-read figures of distinct graduation—no shadows. The patent dust, grit and moisture proof cover fully protects the mechanism and insures long life.



*Send for Catalog
and Price List
of the entire
Standard
Line*

STANDARD GAGE COMPANY, INC.

Poughkeepsie, N. Y.

DETROIT

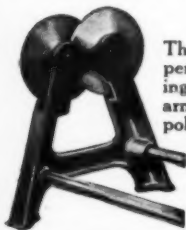
CLEVELAND

DAYTON

CHICAGO

Twentieth Century Balancing Tool

Always on the level



The most practical, sensitive and inexpensive device manufactured for balancing pulleys, cones, armatures, fly wheels, polishing wheels, etc.

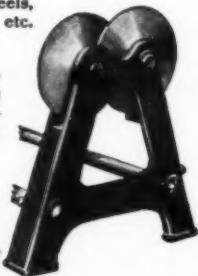
Will set anywhere and is easily portable. In sizes

up to 24,000 pounds capacity.

Ask for the Bulletin

Sundstrand Machine Tool Co.

Rockford, Ill.





FEDERAL

Dial Indicator

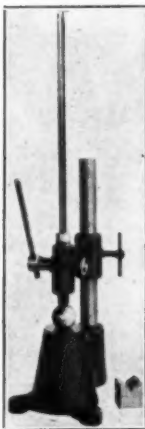
Model "30"

Graduated to read in .0001". As shown in cut, reads 0-5-0 (plus or minus), but can also be furnished with direct reading dial 0-10. Standard range is .020", or two complete revolutions of hand. When used for comparative work, where extreme accuracy is not required, a range of .200" or 20 complete revolutions of hand can be furnished. Other details may be altered to suit your requirements.

*Write for information on
the entire FEDERAL line*

Federal Products Corporation
PROVIDENCE, R. I.

Western Branch: 7338 Woodward Ave., Detroit, Mich.



Arnold Hardness Tester

**A Portable Machine of Rugged Construction
for Reliable and Speedy Testing over a
Wide Range of Work**

Without complicated or delicate mechanism, it is always ready for instant use.

Upkeep costs negligible. The ball is the only part subject to wear, and it can be changed in a fraction of a minute at a cost of less than one cent.

Measures hardness of raw materials in the stock room as well as finished parts, in the hands of the ordinary workman. Furnished with anvils for rounds, flats, irregular shapes and curved work.

*Worth more to you than its moderate cost
Write for more complete information*

H. H. ARNOLD CO., Inc., Rockland, Mass.

**Drill From 900 to 1200 Holes
per Hour**

with the

DETROIT

Semi-Automatic

Five Spindle

DRILLING MACHINE



This efficient production machine will turn out the work as fast as the operator can feed it stock. A pull of the lever locks or unlocks the fixtures instantly. Capacity No. 60 to $\frac{3}{8}$ " drills. If you are looking for speed, accuracy, simplicity and low cost operation—try the DETROIT!

Write for Descriptive Circular

Detroit Machine Tool Co.
5061 Woodward Ave., Detroit, Mich.



Die Making Machines

save an average of 50%

Dies, templets, experimental parts, gages and the like can be sawed, filed and lapped on the Oliver of Adrian Die Making Machine much easier, more accurately and in a fraction of the time ordinarily required for handwork.

We also manufacture a line of

Point Thinners.

Drillpointers.

Cutter Grinders

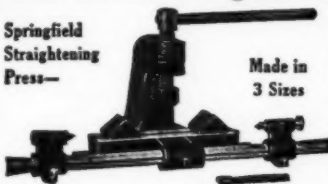


*Send
for
Bulletins*

**Oliver Instrument Company, 1408 Maumee St.,
ADRIAN, MICH.**

Cut Your Straightening Costs

**Springfield
Straightening
Press—**



**Made in
3 Sizes**

**Accurate
Straightening
Service in
Shop
Factory
Toolroom
Garage**

The arrangement of the Springfield makes it the ideal tool for straightening any length of rough or finished work—truing sprung tools—or testing and balancing cams, crank shafts, etc. Placed on the bench it saves the operator's time by eliminating waste steps, and makes for quicker handling of the work.

Let us send you a folder illustrating its many uses

The Springfield Machine Tool Company

633 West Southern Avenue,

SPRINGFIELD, OHIO

We also manufacture Engine Lathes and Shapers

**The Anderson
Ever-Ready**

Balancing Ways



Are extremely sensitive and require no leveling—no adjustments—no centers.

Made of quality materials in several sizes to balance everything that revolves up to 24000 lbs. weight. You will find Andersons always ready, always accurate, and lasting in their service.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards..	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight.....	45	90	150	350	650	
Code.....	Bnd	Bnd	Bis	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.



"Scully-Jones" Chucks for Economical Tapping, Drilling and Milling

CENTER BY THE SHANK;

Insure true running tools and uniform cutting action.

DRIVE BY THE SQUARE;

Insure positive driven tools that can't slip.

MADE IN ONE PIECE;

Simple, compact, no adjustments necessary, nothing to get out of order.

SAVE TOOLS AND SPEED UP PRODUCTION. CHUCKS FOR ALL SIZE TAPS, DRILLS AND CUTTER SHANKS.

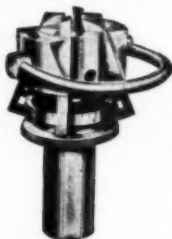
Complete description in our Small Tool Catalog No. 36, listing and describing complete line of "WEAR-EVER" PRODUCTION TOOLS.

SCULLY-JONES & COMPANY TOOL DIVISION

1901 So. Rockwell St., Chicago, Ill.

Reisinger Quick Adjustable Hollow-Mills

Have a graduated adjusting dial — interlocking and moving blades either way to cut smaller or larger diameters.



A clamping device operated by a lever a single move of which locks or releases all blades simultaneously.

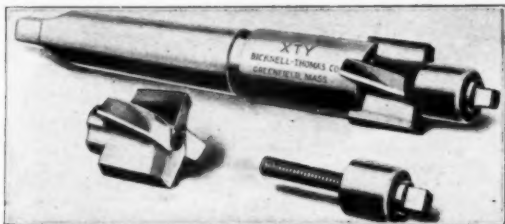
Blades are H. S. Steel

Specifications and Prices, F. O. B. Rochester, N. Y.

No.	Cutting Capacity	Price Complete	Ext. Blades Set of Four	Diam. of Std. Shanks	Larger and taper shanks furnished at small addition. Specify diameter of shank — otherwise Std. shank will be furnished.
1	$\frac{3}{16}$ to $\frac{5}{16}$	\$14.00	\$3.00	$\frac{7}{8}$	
2	$\frac{7}{16}$ to $\frac{1}{2}$	21.00	3.80	$1\frac{1}{4}$	
3	$\frac{1}{2}$ to 1	31.50	5.00	$1\frac{3}{4}$	
4	1 to $1\frac{1}{2}$	47.75	6.60	$2\frac{1}{2}$	

Reisinger Machine Tool Corp., 837 Lake Avenue, ROCHESTER, N. Y.

Counterbore Cutters and Holders



All Bicknell-Thomas Counterbore, Core Drill and Flue Sheet Cutters are forged and twisted while hot, increasing original strength and density of our High Speed Steel, resulting in tools unexcelled for cutting efficiency with increased number of cuts per grind. Decided advantages of the Cutters are the shearing cut—powerful drive—less re-sharpening.

Write for Illustrated Catalog

BICKNELL-THOMAS CO., **Greenfield, Mass.**

Nicholson Expanding Mandrels



Machine Shops can get along without tools like expanding mandrels and high speed drills, but they get out work much faster with them.

Write Us about Mandrels

W. H. Nicholson & Co.
117 Oregon St., **Wilkes-Barre, Pa.**

It Will Meet Your Needs

U. S. Sensitive 14' Floor Drill

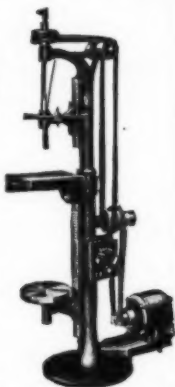
Built to drill holes up to $\frac{1}{2}$ " quickly, accurately and economically.

Price with motor, switch and belts - **\$115**

Or with Counter-shaft for Belt Drive **\$70**

Steel spindle ground to size, with ball thrust bearing; vertical adjustment to head; tables for long and short work; three speeds, etc. Further information gladly given upon request.

The U. S. Machine Tool Co.
1952 W. 6th St., Cincinnati, Ohio



U. S. MULTIPLE SPINDLE Drill Heads

Made regularly with 2 to 6 adjustable spindles, to drill in *any pattern*. Special heads to order.

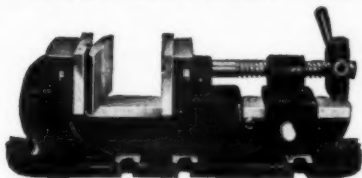
Also made with fixed spindles to fit your work.

Drills two or more holes with the same speeds and feeds that are used for drilling one.

Send us a layout of your work and we'll help to reduce your costs

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.
Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

'Most Efficient Vise Made'



**GEM
Drill
Press
Vise**

THAT will also be your verdict when you know its power, capacity, adaptability and lightning speed of setting. Designed by a mechanic for mechanics. The independent swivel jaw holds taper and irregular work with a bull-dog grip. The Gem saves time in shop and factory. The folder shows its use in drilling and milling operations.

Glad to mail you a copy

J. E. Martin Tool & Die Works, 528 W. State St.
Springfield, O.

Sigourney Sensitive Drills

The Quality Tools That Reduce Costs

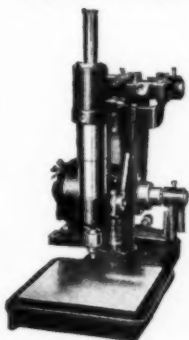
SIGOURNEY DRILLS are designed for those who realize that the best tools pay the largest returns on the investment.

Made with one to four spindles, plain or ball bearing, belt or motor drive. *All parts interchangeable.*

The illustration shows our motor-driven, all-ball-bearing No. 0 High Speed Bench Drill which may be operated up to **10,000 R. P. M.**

*Full data and prices
sent you on request.*

Sigourney Tool Co.
Hartford, Conn., U. S. A.



"Keep Your Production on Wheels"



This is the message of a foremost efficiency expert.

The CanTon Portable Crane

does this for you! It makes it possible for one man to lift pieces weighing up to 6000 pounds, and to move those pieces to the most inaccessible part of your shop.

*A size for every use
Write for booklet E-8*

CANTON FOUNDRY & MACHINE CO., Canton, Ohio

New York Office: 101 West 31st Street

Why Waste Time On Broken Taps?



Every minute spent by your high-priced mechanics digging out broken taps is a dead loss. When a tap breaks it should be **removed quickly**—

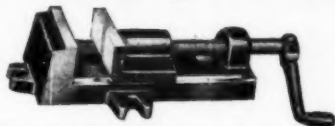
The Walton Tap Extractor

Will do this! Its steel finders back out the tap *without injuring the threads*. It will save you many hours in the course of the year—paying for itself over and over again. Made in three and four-flute styles.

So good we ship on 60-day trial

The Walton Company
302 Pearl St., Hartford, Conn.

A Handy Labor Saving



SHOP VISE

The
AMMCO

The AMMCO Drill Press Vise is rugged, with accurately machined jaws that provide a positive grip on the work. V-shaped slot in movable jaw gives positive clamping of vertical work, while swivel handle makes it easy to adjust in cramped positions. Three flanges on base enable you to attach vise to drill press or work bench.

Price:

\$5.00

F. O. B. Chicago

SPECIFICATIONS:— Width of jaw, $3\frac{1}{2}$ "
Jaw opens, $4\frac{1}{2}$ "

Depth of jaw, $1\frac{1}{2}$ "
Weight, 11 lbs.

Take advantage of this opportunity—Send your order today

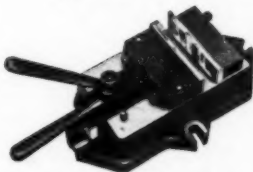
PASSMAN BROTHERS

707 Washington Blvd.,

Chicago, Ill.

Hartford Milling Vise

Speed—Power—Convenience



Jaw width 5"
Jaw depth $1\frac{1}{4}$ "
Maximum opening $3\frac{1}{2}$ "
Weight..... 40 lbs.

Also made in the swivel-jaw type with hard or soft jaws, maximum opening $2\frac{1}{4}$ ".

In point of service the Hartford is unusual. Its specialized design includes a lower cam-faced handle that insures speedy opening and return, and a top eccentric lever handle that gives tremendous binding power. The steel parts are drop forged, hardened and ground—base is made of special iron. The Hartford will stand up under every demand that may be made upon it.

Send for descriptive catalog illustrating its usefulness

We also Build Machinery on a Contract Basis and Design and Develop
Special Automatic Machinery—Gears Cut to Order.

Hartford Special Machinery Co., 285 Homestead Ave., HARTFORD, CONN.

**The Speediest, Most Economical
Buffing Tool Made**



The
Quick-As-Wink

**BUFFING
WHEEL**

Reduces Buffing
Costs by
50%

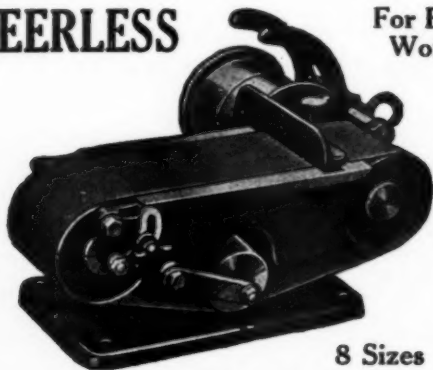
A remarkable buffing system at half the cost of rag-buffs. Absolutely safe at high speeds. Abrasive strips attached in 30 seconds. Gives 100% buffing surface. Wheels accurately balanced. Tested at 8,000 R. P. Ms. Thoroughly guaranteed. Used by hundreds of plants throughout the country.

Send for Complete Details

C. B. HUNT & SON . Salem, Ohio

PEERLESS

**For Flat
Work**



8 Sizes

Write for Circular

PEERLESS SURFACING MACHINE CO., Inc.

TROY, N. Y.

**THOMPSON
12"x36"
Universal**

**For All Kinds
of GRINDING**



**Saves
Time
and
Money**

Plain, edge, die, surface, cutter and reamer, and internal—and good at all of them. Efficient, accurate, dependable.

Work adjusts to a fixed grinding wheel, an exclusive feature that's better.

Machines are equipped with the new auxiliary coarse cross feed for surface grinding.

**The Thompson
Grinder Co.**

1534 West Main St.,
Springfield, Ohio

**Rapid Polishing with the
TAKE-ABOUT Grinder**



You can save valuable time and labor in polishing metal with the TAKE-ABOUT Grinder. The rapid belt action provides a smooth, perfect finish in a fraction of the time required for hand filing and finishing.

Speedy. Easy to operate. Runs off light socket. Bench Stand converts the TAKE-ABOUT into handy tool and edge grinder.

A demonstration will convince you—ask for one NOW.

The Porter-Cable Machine Co.
Salina Street, Syracuse, N. Y.

Polishing cast iron lathe carriages
at Monarch Tool Co., Sidney, Ohio

**PORTER-CABLE
GRINDERS**



**Tight Joints
that
Swivel**



*Sample
on
Approval*

Quick-As-Wink Industrial Hose Couplings

These bronze couplings swivel freely but NEVER LEAK and can't be put out of commission. Just push together Quick-As-Wink, that's all! Can not become disconnected accidentally. Guaranteed for one year. Made in sizes from 1/8" to 4". Get descriptive bulletin and prices.

C. B. HUNT & SON - - - SALEM, OHIO

Autex Extension Reels

PATENTED
Jan. 30, 1917



Type 6
MADE IN U.S.A.

**Prevent those mistakes that
occur because of Poor Light**

The Autex will reach the dark corners of your shop, under your machines, any shelf or bin in your stock room and in any nook or corner where light is needed.

The Autex insures accurate work, boosts production, relieves eye strain, saves time, prevents accidents, and in many other ways quickly pays for itself.

Approved by the Underwriters

Equipped with Rubber Covered Cord

Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio

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(for Alternating Current)



NEW UNIPOLE TYPE — HEAVY DUTY

Designed to remove all traces of residual magnetism from work finished on magnetic chucks.

Supplied for either 110 or 220 volt current.

Requires no counter-shafts, belts or intricate electrical connections. Simply plug into lamp socket or receptacle.

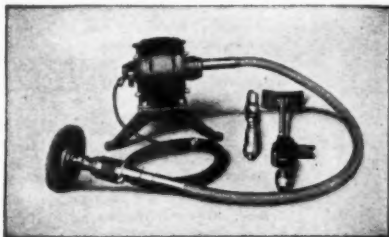
Size 12" long, 9" deep, 6" high. Weight 35 lbs. Attractive switch cover plate contains complete instructions for operating.

Sold on one week's trial.

J. & H. Electric Co., 200 Richmond St.,
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The Whirlwind Buffer and Grinder

**Will cut the cost on any unhandy
grinding or polishing job**



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Stow Flexible Shaft Co., 3454 Ludlow St.,
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The Best Since 1876

Vanderbeek Universal Joints



—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

*Write today for our
Descriptive Catalog.*

American Tool Works, Inc.

Hartford, Conn., U. S. A.



Utility, Speed and Finish In Riveting—



UTILITY: no corner is too inaccessible or too awkward for a Grant to place a rivet. Simplicity in manipulation admits its being operated by cheap labor.

SPEED: one rivet per second.

FINISH: rivets are headed to the exact degree of tightness you require, they are perfectly formed, and carry no marks of mutilation.

*Tell us your needs—or better still
send us samples for riveting.*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

Mall "Jack of All Trades"

and

Masters Them Too



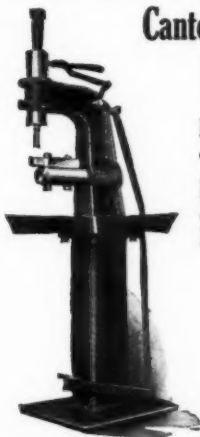
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Scraping
Filing
Sanding
Polishing
Grinding
Sawing
Finishing

**Mall Tools are
powerful tools**

Write for Catalog

Mall Tool Company, 7730 So. Chicago Ave.,
Chicago, Illinois

Canton Pedestal and Bench Pneumatic Riveters



Have you ever considered
driving several rivets at once?

Multiple riveting is practical
on many jobs with Canton
Riveters.

**Let us work out your
riveting problems.**

*We also build a complete line of
Chipping and Calking Hammers*

Canton Pneumatic Co.

1720-9th St., S. W., Canton, Ohio

No. 2 ALTO Three Speed Motor Driven Tapping Machine

**Saves Time
Saves Taps**

Saves Money—in the first cost and in the long run.

FEATURES:

Motor driven, 3 speed double speed reverse, quick change, back geared cone clutch. Sensitive for small tapping and powerful enough to drive $\frac{1}{8}$ " tap through C. R. steel.

We also make smaller High Speed Tappers.

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descriptive literature
and attractive prices*



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CHICAGO, ILL.

“PROCUNIER”

SAFETY TAPPING ATTACHMENT with the “Procunier” Safety Friction and “Double-Jaw” tap holder gives *greater accuracy less tap breakage*, and more tapped holes to the dollar.



**All Hardened Gears
Special Hardened and Treated Clutches
Balanced Reversing Mechanism**

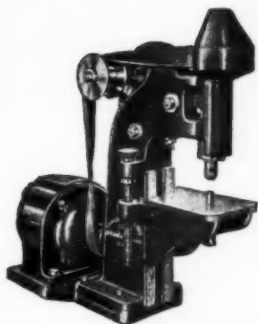
With the “Procunier” Safety Friction Device blind holes can be tapped just as easily as through holes, and without danger of breakage. Don't hesitate to ask for a free trial.

*Catalogue 102-B gives complete details of “PROCUNIER”
Tapping Devices, Quick Change Chucks, Stud
Setters and Bench Tapping Machines.*

Procunier Safety Chuck Co.

14 So. Clinton St.,

CHICAGO, ILL.



For Your Small RIVETING

The Linley Rotary RIVET SPINNER

Covers a wide field of riveting.

Simple in design but—

Rigid and powerful.

Guaranteed to give satisfaction.

Get the full details before buying
a riveter

**WE ALSO
MANUFACTURE**

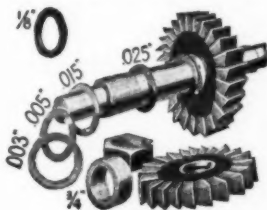
**EQUIPMENT FOR ROTARY
RIVET SPINNING MACHINES**

SEND FOR DESCRIPTIVE FOLDER

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Bridgeport, Conn.

Steel Spacing Washers—

Made of a good grade of Cold Rolled
Strip Steel, also known as Shim Steel



Stock sizes for arbors of
following diameters: $\frac{3}{8}$,
 $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$,
 $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{7}{8}$, $1\frac{3}{4}$, $1\frac{1}{2}$, 2,
 $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in.
and larger.

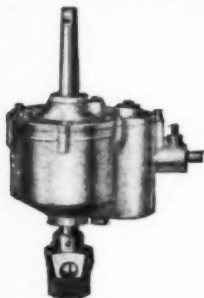
Stock thicknesses: .002,
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.007, .008, .010, .012,
.015, .020, .025, .032,
.047, .063, .093 and
.125 inch.

Other thicknesses up to
3.000" made to order, with
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Ask us to send samples; you'll like them

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IF YOU TAP HOLES—



Why not have the feel of the tap right at your finger tips? A tap is a delicate tool. The Ettco Tapping Attachment taps delicately—with increased speed—That's the answer.

THE ETTCO Tapping Attachment

is simple—nothing to adjust—if the tap sticks or hits bottom the Ettco slips—the same action coming out. No clash of a positive clutch—just the smooth action of the patented leather lined cone clutch.

Sensitive—speedy—satisfactory.

No. 1—Tapping Attachment	$\frac{3}{16}$ " in steel, $\frac{1}{4}$ " in C. I.	\$35.00
No. 2—Tapping Attachment	$\frac{7}{16}$ " in steel, $\frac{3}{8}$ " in C. I.	50.00
No. 3—Tapping Attachment	$\frac{1}{2}$ " in steel, $\frac{5}{8}$ " in C. I.	80.00

Eastern Tube & Tool Co., Inc., 600 Johnson Ave., BROOKLYN, N. Y.

Edgemont Friction Clutch

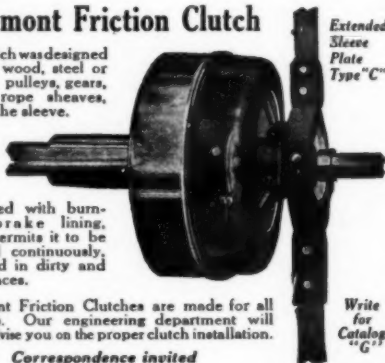
This clutch was designed to drive wood, steel or cast iron pulleys, gears, drums, rope sheaves, etc., on the sleeve.

It is lined with burn-proof brake lining, which permits it to be operated continuously, and used in dirty and dusty places.

Edgemont Friction Clutches are made for all purposes. Our engineering department will gladly advise you on the proper clutch installation.

Correspondence invited

Edgemont Machine Co., Inc., DAYTON, OHIO

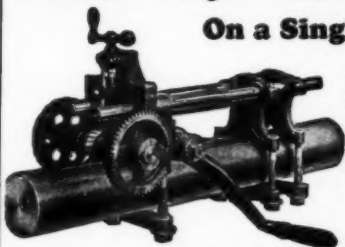


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Sleeve
Plate
Type "C"*

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for
Catalog
"G"*

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On a Single Job—



**The BURR
Portable
Keyseater**

Cuts keyways
up to 12" long,
in shafts up to 5"
diam., anywhere,
in any position.

Made in seven
sizes, hand or
motor driven. No dismantling—no fuss—invaluable in emer-
gencies. Over 10,000 in use. *Order one today and begin
saving money.*

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1000 AND MORE

IN USE. THIS

KEYSEATER

WILL DO THE WORK.
A VALUABLE TOOL.

Catalog O Will Start You

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.





"Borgeson Universal Joints"

Are you a user of Universal Joints?
If so!

Remember well and bear in mind that a good Universal Joint is hard to find. But if you want one tried and true, you will want the "Borgeson" before you are through.

You will become not only a "Buyer" but a "Booster" for "Borgeson."

SIZES: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2, $2\frac{1}{2}$, $2\frac{3}{4}$.

Should you require Special Universal Joints, be sure to write for quotation.

*Complete description gladly
furnished upon request*

The Borgeson Mfg. Co., Inc.
Torrington, Conn.

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COLLETS



We are Specialists—

in manufacturing any design collet—from the smallest to the largest sizes, either from sample or drawing, and including Screw Machine Collets.

Prices quoted on application

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We will save you money on your Lathe Spindles, Rams, Clutch Shafts, Piston Rods and similar parts, made to your specifications. Finest quality of materials and workmanship. Send us your blueprints and we will quote prices that will surprise you!

High Quality—Right Prices—Good Service

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Erie, Penna.

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THE SCHWERDTLE STAMP CO.
BRIDGEPORT, CONN.

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- Arbors, Solid**
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- Auto-Gages For Dies**
Dandy Machine Specialties, Inc., 2116 So. 82nd Ave., Chicago
- Automatics**
New Britain Machine Co., New Britain, Conn.
- Balancing Ways**
Anderson Bros. Mfg. Co., Rockford, Ill.
Sundstrand Machine Tool Co., Rockford, Ill.
- Balls, Bearing and Burnishing**
Abbott Ball Co., Hartford, Conn.
- Band Saw Machines, for Metal**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
- Bar Cutters**
Buffalo Forge Co., Buffalo, N. Y.
- Barrels, Tumbling**
Abbott Ball Co., Hartford, Conn.
Scully-Jones & Co., 1901 So. Rockwell St., Chicago
- Bench Legs, Steel**
New Britain Mch. Co., New Britain, Conn.
- Bending Machines, Hand and Power**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
- Buffalo Forge Co., Buffalo, N. Y.**
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Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H. 311 E. 47th, N. Y.
Laurie Mfg. Co., 666 Washington, Chicago
Pedrick Tool & Machine Co., Philadelphia
- Bending Rolls**
Hendley & Whittemore Co., Beloit, Wis.
- Bolt and Nut Machinery**
Economy Engineering Co., Willoughby, O.
Foots-Bart Co., Cleveland, O.
- Boring Bars**
Chicago Tool & Engineering Co., 8389 So. Chicago Ave., Chicago
Pedrick Tool & Machine Co., Philadelphia
Scully Steel & Iron Co., 2384 So. Ashland Ave., Chicago
- Boring Bars, Cylinder**
Pedrick Tool & Machine Co., Philadelphia
- Boring, Drilling & Milling Machines**
Defiance Machine Co., Defiance, O.
- Boring and Drilling Mch., Vertical**
Baker Brothers, Inc., Toledo, Ohio
- Boring and Turning Machines, Vertical**
Cincinnati Planer Co., Cincinnati, Ohio
- Boring Heads**
Waterston J. M., Detroit, Mich.
- Boring Machines, Horizontal**
Avery Drilling Machine Co., Cincinnati
Lambert Mch. & Engr'g Co., Cleveland, O.
Pedrick Tool & Machine Co., Philadelphia
- Boring Tools**
Chicago Tool & Engineering Co., 8389 So. Chicago Ave., Chicago
The Co-Operative Mch. Co., Cleveland, O.
Rickart-Shafer Co., Erie, Pa.
- Brands, Burning**
Schwerdtle Stamp Co., Bridgeport, Conn.
- Betting Wheels**
Hunt & Son, C. B., Salem, Ohio
- Buildovers, Hydraulic**
Laurie Mfg. Co., 666 Washington, Chicago
- Burnishing Equipment, Ball**
Abbott Ball Co., Elmwood, Conn.
- Bushings, Drill**
Acme Industrial Co., 419 N. Carpenter St., Chicago
- Bushing Finishing Machines.**
Economy Engineering Co., Willoughby, O.
- Calipers, Vernier**
Scherr Co., Geo., 144 Liberty St., New York
- Casters, Truck**
Pleaser Carter & Mfg. Co., Elkhart, Ind.
- Center Grinders**
Chicago Tool & Engineering Co., 8389 So. Chicago Ave., Chicago
- Centering Machines**
Sundstrand Machine Tool Co., Rockford, Ill.
- Chamfering Machines, Automatic**
Grant Mfg. & Mch. Co., Bridgeport, Conn.
- Chucking Machines**
New Britain Mch. Co., New Britain, Conn.
Springfield Machine Tool Co., Springfield, O.
Stevens Inc., John B., 27 Cleveland Place, New York
- Chucks, Automatic and Quick Change**
Procurer Safety Chuck Co., 18 S. Clinton St., Chicago
- Chucks, Collet**
Hardinge Brothers, Inc., 1770 Bertou Ave., Chicago
Procurer Safety Chuck Co., 18 S. Clinton St., Chicago
- Chucks, Drill**
Eastern Tube & Tool Co., Inc., 580 Johnson Ave., Brooklyn, N. Y.
Hartford Special Mch. Co., Hartford, Conn.
Scully-Jones & Co., 1901 So. Rockwell St., Chicago
- Chucks, Drill and Tap**
Bicknell-Thomas Co., Greenfield, Mass.
Procurer Safety Chuck Co., 18 S. Clinton St., Chicago
Scully-Jones & Co., 1901 So. Rockwell St., Chicago
- Chucks, Keyway Cutting**
Scully-Jones & Co., Ry. Exch. Bldg., Chicago
- Chucks, Lathe.**
Stevens Inc., John B., 27 Cleveland Place, New York
- Chucks, Magnetic**
J. & H. Electric Co., Providence, R. I.
- Chucks, Oval**
Frew Machine Co., Philadelphia, Pa.
- Clamps, Die**
Dandy Machine Specialties, Inc., 2116 So. 82nd Ave., Chicago
- Clutches, Friction**
Conway Clutch Co., Cincinnati, O.
Edgemont Machine Co., Dayton, O.
Foots Bros. Gear & Machine Co., 213 Curtis, Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
- Cold Saws**
Burke Machine Tool Co., Conneaut, Ohio
- Collets**
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- Comparators**
Federal Products Corp., Providence, R. I.
- Contract Work Wanted**
Burke Machine Tool Co., Conneaut, O.
- Cone Drills**
Bicknell-Thomas Co., Greenfield, Mass.
- Counterbores and Spot Facers**
Bicknell-Thomas Co., Greenfield, Mass.
Glenzer Co., J. C., Detroit, Mich.

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Couplings, Flexible

Foots Bros. Gear & Machine Co., 215 Curtis St., Chicago
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
Nicholson Co., W. H., Wilkes-Barre, Pa.

Couplings, Friction Clutch

Conway Clutch Co., Cincinnati, O.
Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago

Couplings, Shaft

Jones Foundry & Machine Co., W. A., 4450 W. Roosevelt Road, Chicago
Nicholson Co., W. H., Wilkes-Barre, Pa.

Cranes, Portable

Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Canton Foundry & Mch. Co., Canton, Ohio

Crank Pin Turning Machine

Pedrick Tool & Machine Co., Philadelphia

Cutters, Keyseating

Davis Keyseater Co., Rochester, N. Y.
Scully-Jones & Co., 1801 So. Rockwell St., Chicago

Cutters, Milling

Brown & Sharpe Mfg. Co., Providence, R. I.
Reed-Prentice Corp., Worcester, Mass.
Reisinger Mch. Tool Corp., Rochester, N. Y.

Cutting-Off Machines

Scherr Co., Geo., 144 Liberty St., New York

Cylinder Boring Machines, Portable

Pedrick Tool & Machine Co., Philadelphia

Demagnetizers

J. & H. Electric Co., Providence, R. I.

Die Making Machines

Oliver Instrument Co., Adrian, Mich.

Dies, Automatic Self-Opening

Rickert-Shafer Co., Erie, Pa.

Die Sets

Beumbach Mfg. Co., E. A., 1812 So. Kilmourne Ave., Chicago
Daily Machine Specialties, Inc., 2116 So. 52nd Ave., Chicago

Die Sinking and Engraving Machines

Keller Mch. Eng. Corp., 58A Washington St., Brooklyn, N. Y.

Discs, Machine Steel

Pansman Bros., 707 W. Washington Blvd., Chicago

Dividing Heads

Scherr Co., Geo., 144 Liberty St., New York
Stevens Inc., John B., 27 Cleveland Place, New York

Drill Holders

Chicago Tool & Engineering Co., 8399 So. Chicago Ave., Chicago

Drill Racks

Fairless Machine Co., Racine, Wis.

Drilling Heads, Multiple

United States Drill Head Co., Cincinnati

Drilling Machines, Automatic

Baker Brothers, Inc., Toledo, Ohio.

Drilling Machines, Bench

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Buffalo Forge Co., Buffalo, N. Y.
Burke Machine Tool Co., Conneaut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
National Elect. Prod. Co., 148 Baxter, N. Y.
Sigourney Tool Co., Hartford, Conn.
Stecher Co., Chas., 2452 N. Greenview Ave., Chicago

Taylor & Fenn Co., Hartford, Conn.
Thompson Mfg. Co., Inc., Boston, Mass.
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Boiler

National Elect. Prod. Co., 148 Baxter, N. Y.

Drilling Machines, Gang

Baker Brothers, Inc., Toledo, Ohio.

Drilling Machines, Horizontal

Detroit Machine Tool Co., Detroit, Mich.
Frew Machine Co., Philadelphia, Pa.
National Elect. Prod. Co., 148 Baxter, N. Y.
Stevens Inc., John B., 27 Cleveland Place, New York

Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Detroit Machine Tool Co., Detroit, Mich.
Foots-Burt Co., Cleveland, O.
National Elect. Prod. Co., 148 Baxter, N. Y.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric

Healy-Wolf Machine Co., Cincinnati, O.
Mail Tool Co., 7730 S. Chicago Ave., Chicago
National Elect. Prod. Co., 148 Baxter, N. Y.
Standard Electrical Tool Co., Cincinnati, O.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chicago
Vim Tool Co., 148 Broadway, New York
Winterhoff Tool & Machine Co., Elkhart, Ind.

Drilling Machines, Post

Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Hammond Mfg. Co., Cleveland, Ohio.
National Elect. Prod. Co., 148 Baxter, N. Y.

Drilling Machines, Radial

American Tool Works Co., Cincinnati, O.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Drenes Machine Tool Co., Cincinnati, O.
Hammond Mfg. Co., Cleveland, Ohio.
National Elect. Prod. Co., 148 Baxter, N. Y.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Semi-Automatic

Detroit Machine Tool Co., Detroit, Mich.

Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Buffalo Forge Co., Buffalo, N. Y.
Burke Machine Tool Co., Conneaut, Ohio
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
National Elect. Prod. Co., 148 Baxter, N. Y.
Sigourney Tool Co., Hartford, Conn.
Stecher Co., Chas., 2452 N. Greenview Ave., Chicago
Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.

Drilling Machines, Vertical

Avey Drilling Machine Co., Cincinnati
Buffalo Forge Co., Buffalo, N. Y.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Foots-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Marsh Machinery Co., A. R., Cleveland, Ohio
National Elect. Prod. Co., 148 Baxter, N. Y.
Oesterlein Machine Co., Cincinnati, Ohio
Sigourney Tool Co., Hartford, Conn.
Standard Electrical Tool Co., Cincinnati, O.
Stecher Co., Chas., 2452 N. Greenview Ave., Chicago
Taylor & Fenn Co., Hartford, Conn.

Drills, Twist

Cleveland Twist Drill Co., Cleveland, Ohio.

Emery Wheel Dressers and Cutters

Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Engravers, Mechanical and Hand

Schwerdtle Stamp Co., Bridgeport, Conn.

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Etching Machines, Electric

Brewster Co., Wm., Inc., 60 Church St.,
New York
Luma Electric Equipment Co., Toledo, Ohio.

Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

Filing Machines

LaPorte Machine & Tool Co., LaPorte, Ind.
Oliver Instrument Co., Adrian, Mich.
Wardwell Mfg. Co., Cleveland, O.

Filing and Sawing Machines

LaPorte Machine & Tool Co., LaPorte, Ind.

Flexible Shaft Machinery

Keller Mech. Eng. Corp., 68A Washington
St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chicago

Flue Sheet Tools

Hicknell-Thomas Co., Greenfield, Mass.

Forges

Casady-Otto Mfg. Co., Chicago Heights, Ill.

Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.
Western Tool & Mfg. Co., Springfield, O.

Gages, Cylindrical and Thread

Federal Products Corp., Providence, R. I.

Gages, Dial

Federal Products Corp., Providence, R. I.
Standard Gage Co., Poughkeepsie, N. Y.

Gages, Pin, Plug, Ring and Snap

Standard Gage Co., Poughkeepsie, N. Y.

Gages, Special

Standard Gage Co., Poughkeepsie, N. Y.

Gauges, Taper

Hartford Special Mch. Co., Hartford, Conn.

Gear Cutters

Brown & Sharpe Mfg. Co., Providence, R. I.
Triplex Machine Tool Corp., 60 Church St.,
New York

Gear Hobbers

Scherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 60 Church St.,
New York

Gears

Boston Gear Works Sales Company, Norfolk
Downs, Mass.
Chicago Stock Gear Works, 105 S. Jefferson,
Chicago
Foote Bros. Gear & Machine Co., 213 Curtin
St., Chicago
Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Gears, Herringbone

Jones Foundry & Machine Co., W. A., 4450
W. Roosevelt Road, Chicago

Grinding Machine All, Pneumatic Turbine

Onsrud Machine Works, Inc., 3910 Palmer
St., Chicago

Grinding Machines, Belt

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Peerless Surfacing Machine Co., Troy, N. Y.
Wells Sales Corp., 95 Warren St., New York

Grinding Machines, Bench

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Hill-Curtis Co., Kalamazoo, Mich.
Hisey-Wolf Machine Co., Cincinnati, O.
Scott-Bansbach Mch. Co., 130 S. Clinton
St., Chicago
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Cutter, Reamer and Tool

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Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Jarecki Mch. & T. Co., Grand Rapids, Mich.
LaBlond Mch. Tool Co., R. E., Cincinnati, O.
National Machine Tool Co., Racine, Wis.
Oesterlein Machine Co., Cincinnati, Ohio
Oliver Instrument Co., Adrian, Mich.
Stevens Inc., John B., 27 Cleveland Place,
New York

Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Cylindrical

Brown & Sharpe Mfg. Co., Providence, R. I.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Disc

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Porter Cable Machine Co., Syracuse, N. Y.
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Drill

Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Oliver Instrument Co., Adrian, Mich.

Grinding Machines, External

Kern Electric & Eng. Co., Newark, N. J.

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Flexible Shaft

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Brooklyn, N. Y.

Grinding Machines, Hob

Scherr Co., Geo., 144 Liberty St., New York

Grinding Machines, Internal

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Chicago Ave., Chicago
Kern Electric & Eng. Co., Newark, N. J.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Onsrud Machine Works, Inc., 3910 Palmer
St., Chicago
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Portable Electric

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Hisey-Wolf Machine Co., Cincinnati, O.
Keller Mech. Eng. Co., 68A Washington
St., Brooklyn, N. Y.
Mall Tool Co., 7730 S. Chicago Ave., Chgo.
National Machine Tool Co., Racine, Wis.
Porter-Cable Machine Co., Syracuse, N. Y.
Scott-Bansbach Mch. Co., 130 S. Clinton
St., Chicago
Standard Electrical Tool Co., Cincinnati, O.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 6001 N. Lincoln St., Chgo
Vim Tool Co., 149 Broadway, New York
Winterhoff Tool & Mch. Co., Elkhart, Ind.

Grinding Machines, Snagging

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Mich.
Hill-Curtis Co., Kalamazoo, Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Illinois Machine & Mfg. Co., LaSalle, Ill.
Kern Electric & Eng. Co., Newark, N. J.
Stevens Inc., John B., 27 Cleveland Place,
New York
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Tap

Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Classified Finding Index

Grinding Machines, Tool

Hill-Curtis Co., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Universal

Brown & Sharpe Mfg. Co., Providence, R. I.
Gallmeyer & Livingston Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio

Hack Saw Blades

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.
Machine Tool & Machine Co., Racine, Wis.
Victor Saw Works, Inc., Middletown, N. Y.

Hack Saw Machines

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.
Machine Tool & Machine Co., Racine, Wis.

Hammers, Chipping and Calking

Canton Pneumatic Co., Canton, Ohio

Hardness Testers

Arnold Co., H. H., Inc., Rockland, Mass.
Wilson-Macaulay Co., Inc., 735 E. 143rd St., New York

Hot Grinders

Triplex Machine Tool Corp., 50 Church St., New York

Hoists, Portable

Canton Foundry & Machine Co., Canton, Ohio

Hose Couplings

Hunt & Son, C. B., Salem, Ohio

Hydraulic Machinery

Laurie Mfg. Co., 665 Washington, Chicago

Index Centers, Single and Multi Spdl.

Brown & Sharpe Mfg. Co., Providence, R. I.
Fay & Scott, Dexter, Maine
Stevens Inc., John B., 27 Cleveland Place, New York

Indicators, Dial

Federal Products Corp., Providence, R. I.
Standard Gage Co., Foughkeepsie, N. Y.

Jigs and Fixtures

City Machine & Tool Works, Dayton, Ohio
Hartford Special Mch. Co., Hartford, Conn.
LaPorte Machine & Tool Co., LaPorte, Ind.

Keyseating Machines

Baker Brothers, Inc., Toledo, Ohio.
Harr & Son, John T., Brooklyn, N. Y.
Chattanooga Mch. Co., Chattanooga, Tenn.
Davis Keyseater Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati

Lathe Accessories and Attachments

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
The Co-Operative Mch. Co., Cleveland, O.
Fay & Scott, Dexter, Maine
Reed-Prentice Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio

Lathe Turrets

The Co-Operative Mch. Co., Cleveland, O.

Lathes, Bench

Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
Monarch Machine Tool Co., Sidney, O.

Lathes, Engine

American Tool Works Co., Cincinnati, O.
Bradford Machine Tool Co., Cincinnati, O.
Carroll Mch. Tool Co., A. V., Cincinnati, O.
Carroll & Jamieson Mch. Tool Co., Batavia, O.
Cincinnati Lathe & Tool Co., Cincinnati, O.
Fay & Scott, Dexter, Maine
Hamilton Tool Co., Hamilton, O.
Hardinge Brothers, Inc., 1770 Berteau Ave., Chicago
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
McCabe Lathe & Machinery Corp., J. J., 149 Broadway, New York

Monarch Machine Tool Co., Sidney, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Sebastian Lathe Co., Cincinnati, Ohio
Sidney Machine Tool Co., Sidney, Ohio
Springfield Machine Tool Co., Springfield, O.

Lathes, Extension Bed Gap

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Rahn-Larson Co., Cincinnati, O.

Lathes, Gap

Carroll Mch. Tool Co., A. V., Cincinnati, O.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Lathes, Hand

Stevens Inc., John B., 27 Cleveland Place, New York

Lathes, Manufacturing

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Reed-Prentice Corp., Worcester, Mass.
Sundstrand Machine Tool Co., Rockford, Ill.

Lathes, Precision

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Reed-Prentice Corp., Worcester, Mass.

Lathes, Short Bed

Monarch Machine Tool Co., Sidney, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Sidney Machine Tool Co., Sidney, Ohio

Lathes, Tool Room

Cincinnati Lathe & Tool Co., Cincinnati, Ohio
Reed-Prentice Corp., Worcester, Mass.

Lathes, Turret

Bradford Machine Tool Co., Cincinnati, O.
Cincinnati Lathe & Tool Co., Cincinnati, Ohio
Monarch Machine Tool Co., Sidney, O.

Mandrels, Expanding

Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Millers, Tilted Rotary and Offset

Oesterlein Machine Co., Cincinnati, Ohio

Milling Attachments

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Reed-Prentice Corp., Worcester, Mass.
Stevens Inc., John B., 27 Cleveland Place, New York
Taylor & Fenn Co., Hartford, Conn.

Milling Machine Spacing Washers

The Co-Operative Mch. Co., Cleveland, O.

Milling Machines, Bench

Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Cam

Frew Machine Co., Philadelphia, Pa.

Milling Machines, Hand

Burke Machine Tool Co., Conneaut, Ohio
Frew Machine Co., Philadelphia, Pa.
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.
U. S. Machine Tool Co., Cincinnati, O.

Milling Machines, Horizontal

Oesterlein Machine Co., Cincinnati, Ohio

Milling Machines, Manufacturing

Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Plain

Brown & Sharpe Mfg. Co., Providence, R. I.
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Classified Finding Index

Milling Machines, Portable
Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal
Brown & Sharpe Mfg. Co., Providence, R. I.
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.

Milling Machines, Vertical
Brown & Sharpe Mfg. Co., Providence, R. I.
Hurke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Reed-Prattice Corp., Worcester, Mass.
Taylor & Fenn Co., Hartford, Conn.

Mills, Adjustable Hollow
Reisinger Mch. Tool Corp., Rochester, N. Y.

Name Plates, Etched and Stamped
Schwerdtle Stamp Co., Bridgeport, Conn.

Nut Setters, Electric
Vim Tool Co., 149 Broadway, New York

Oil Cups
Gits Bros. Mfg. Co., 1940 S. Kilbourn Ave.,
Chicago
Tucker, W. W. & C. F., Hartford, Conn.

Oil Extractors
Tolhurst Machine Works, Troy, N. Y.

Pattern Shop Machinery
Towley Mfg. Co., John T., Cincinnati

Pins, Leader And Dowel
Baumbach Mfg. Co., E. A., 1812 So. Kilbourn Ave., Chicago
Dunly Machine Specialties, Inc., 2116 S. 52nd
Ave., Chicago

Pipe Bending Machines
Pedrick Tool & Machine Co., Philadelphia

Planers, Valve Seat, Portable
Pedrick Tool & Machine Co., Philadelphia

Planing Machines
Cincinnati Planer Co., Cincinnati, Ohio
Cleveland Planer Co., Cleveland, Ohio

Point Thinning Machines
Oliver Instrument Co., Adrian, Mich.

Polishing and Buffing Machines
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hill-Curtis Co., Kalamazoo, Mich.
Hosey-Wolf Machine Co., Cincinnati, O.
Mat Tool Co., 7720 S. Chicago Ave., Chicago
Nedco Company, Natick, Mass.
New Britain Machine Co., New Britain, Conn.
Standard Electrical Tool Co., Cincinnati, O.

Presses, Arbor
Atlas Press Co., Kalamazoo, Mich.
Lourie Mfg. Co., 565 Washington, Chicago
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago
Wilson, R. K., Buffalo, N. Y.

Presses, Breaching
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Drawing
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Flanging
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Foot
Rockford Iron Works, Rockford, Ill.
Taylor & Fenn Co., Hartford, Conn.

Presses, Forcing
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Forming
Lourie Mfg. Co., 565 Washington, Chicago

Presses, Power
Hendley & Whittemore Co., Beloit, Wis.
Lourie Mfg. Co., 565 Washington, Chicago
Rockford Iron Works, Rockford, Ill.

Presses, Punch
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Rockford Iron Works, Rockford, Ill.

Presses, Screw
Fall River Grinding & Machine Co., Fall
River, Mass.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Towley Mfg. Co., John T., Cincinnati

Presses, Wheel
Lourie Mfg. Co., 565 Washington, Chicago

Profiling Machines
Frow Machine Co., Philadelphia, Pa.
Oliver Instrument Co., Adrian, Mich.

Pulley Machinery
Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split
Conway Clutch Co., Cincinnati, O.
Jones Foundry & Machine Co., W. A., 4650
W. Roosevelt Road, Chicago

Pumps, Coolant
Fulfillo Specialties Co., Blanchester, O.

Pumps, Hydraulic
Lourie Mfg. Co., 565 Washington, Chicago

Pumps, Lubricant
Rothman Machinery Co., Cincinnati, O.

Punch Press Feeds
Rockford Iron Works, Rockford, Ill.

Punch, Shear and Bender, Hand
Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago

Punches, Hand
Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th,
New York
Whitney Metal Tool Co., Rockford, Ill.

Punches, Power
Hendley & Whittemore Co., Beloit, Wis.

Punches and Dies
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Rockford Iron Works, Rockford, Ill.

Punches and Shears
Buffalo Forge Co., Buffalo, N. Y.
Excelsior Tool & Mch. Co., E. St. Louis, Ill.

Pyrameters
Wilson-Maclean Co., Inc., 735 E. 143rd St.,
New York

Racks, Bar Stock
New Britain Machine Co., New Britain, Conn.
Yeh Supply Co., Wm. B., Canton, O.

Reamers, Adjustable
Cleveland Twist Drill Co., Cleveland, Ohio.
Schellenbach-Hunt Tool Co., Cincinnati, O.

Reamers, Expanding
Lambert Mch. & Eng'g Co., Cleveland, O.

Reamer Holders
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Reels, Extension
Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveters, Multiple Spindle
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveters, Pneumatic
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Riveting Machine Equipment
Linley Bros. Co., Bridgeport, Conn.

Classified Finding Index

Riveting Machines

Canton Pneumatic Co., Canton, Ohio
Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rad Cutters

Armstrong-Blum Mfg. Co., 841 N. Francisco
Av., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 311 E. 47th, N. Y.
Tucker, W. W. & C. F., Inc., Hartford, Conn.

Rotary Tables, Hand Feed

Stevens Inc., John B., 27 Cleveland Place,
New York

Safety Steps

Atlantic Co., Box 133, Sta. B., Brooklyn, N. Y.

Saw Sharpening Machines

Huther Bros. Saw Mfg. Co., Rochester, N. Y.
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand

Reed-Prentice Corp., Worcester, Mass.

Saws, Metal Cutting Circular and Band

Huther Bros. Saw Mfg. Co., Rochester, N. Y.

Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric

Hisey Wolf Machine Co., Cincinnati, O.
Vim Tool Co., 149 Broadway, New York

Screw Driving Machines, Automatic

Reynolds Machine Co., Mansfield, Ohio

Screw Machines, Automatic

New Britain Mch. Co., New Britain, Conn.

Set-Up Appliances

Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible

Keller Mech. Eng. Corp., 68A Washington St.,
Brooklyn, N. Y.
Mall Tool Co., 7780 S. Chicago Ave., Chgo.
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chgo.

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

Shaping Machines

American Tool Works Co., Cincinnati, O.
Osborne & Sexton Machy. Co., Columbus, O.
Rhodes Mfg. Co., Hartford, Conn.
Smith & Mill Co., Cincinnati
Springfield Machine Tool Co., Springfield, O.

Shears, Alligator

Canton Foundry & Machine Co., Canton, O.

Shears, Hand

Armstrong-Blum Mfg. Co. 841 N. Francisco
Av., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Machine Co., T. H., 311 E. 47th
St., New York
Tucker, W. W. & C. F., Inc., Hartford, Conn.
The Unishear Co., 270 Lafayette, New York
Whitney Metal Tool Co., Rockford, Ill.

Shears, Electric Hand

The Unishear Co., 270 Lafayette, New York

Shears, Power

Hendley & Whittemore Co., Beloit, Wis.
The Unishear Co., 270 Lafayette, New York

Sheet Metal Cutting Tools

The Unishear Co., 270 Lafayette, New York

Slotting Machines

Rhodes Mfg. Co., Hartford, Conn.

Slotting Machines, Screw Head

Stevens Inc., John B., 27 Cleveland Place,
New York

Spacing Washers

Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery

Bradford Machine Tool Co., Cincinnati, O.
City Machine & Tool Works, Dayton, Ohio.
Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago

Illinois Machine & Mfg. Co., LaSalle, Ill.
LaPorte Machine & Tool Co., LaPorte, Ind.

Reed-Prentice Corp., Worcester, Mass.
Stecher Co., Chas., 2452 N. Greenview Ave.,
Chicago

Superior Machine & Eng. Co., Detroit, Mich.

Speed Reducers, Worm, Spur and Herringbone

Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago

Spindles, Air Driven

Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.

Spindles, Grinding

Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.

Spring Taper Sleeves

Scherr Co., Geo., 144 Liberty St., New York

Spring Winding Tools

Superior Spring Winding Tool Co.,
Milwaukee, Wis.

Sprockets

Foots Bros. Gear & Machine Co., 213 Curtis
St., Chicago
Jones Foundry & Machine Co., W. A.,
4450 W. Roosevelt Road, Chicago
Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber

Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board

Schwerdtle Stamp Co., Bridgeport, Conn.

Stools and Chairs, Factory

Chicago Wire Chair Co., 619 N. La Salle St.,
Chicago

Stop Motions

Atlantic Co., Box 133, Sta. B., Brooklyn, N. Y.

Straightening Machines

Springfield Machine Tool Co., Springfield, O.
Towsley Mfg. Co., John T., Cincinnati
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters

Proconier Safety Chuck Co., 18 S. Clinton
St., Chicago

Tap Extractors

Walton Co., Hartford, Conn.

Tap Holders

Bicknell-Thoman Co., Greenfield, Mass.
Proconier Safety Chuck Co., 18 S. Clinton
St., Chicago

Tapping Machines and Attachments

Alto Mfg. Co., 1647 Wolfram St., Chicago.
Avey Drilling Machine Co., Cincinnati
Baker Brothers, Inc., Toledo, Ohio.
Bicknell-Thoman Co., Greenfield, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Eastern Tube & Tool Co., Inc., 580 Johnson
Ave., Brooklyn, N. Y.
Frew Machine Co., Philadelphia, Pa.
Hammond Mfg. Co., Cleveland, Ohio
Leland Gifford Co., Worcester, Mass.
Proconier Safety Chuck Co., 18 S. Clinton
St., Chicago

Rickert-Shafer Co., Erie, Pa.
Whitney Metal Tool Co., Rockford, Ill.

Thread Dies

Colvan, J. M., Yonkers, N. Y.

Thread Millers

Scherr Co., Geo., 144 Liberty St., New York
Triplex Machine Tool Corp., 60 Church St.,
New York

Threading Machines

Rickert-Shafer Co., Erie, Pa.

Threading Machines, Automatic, Stud

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Classified Finding Index

Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago
Zerman-Clark Mfg. Co., 225 W. Huron St.,
Chicago

Tool Holders

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago
Western Tool & Mfg. Co., Springfield, O.

Tool Racks

Chicago Wire Chair Co., 619 N. La Salle St.,
Chicago

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Tools, Spot Facing

Reisinger Mch. Tool Corp., Rochester, N. Y.

Trucks, Machine Shop

New Britain Machine Co., New Britain, Conn.
Towsley Mfg. Co., John T., Cincinnati

Tube Flanging Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Turntables

Canton Foundry & Machine Co., Canton, O.

Turret Tool Posts

Fay & Scott, Dexter, Maine

Universal Joints

American Tool Works, Inc., Hartford, Conn.
Borgeson Mfg. Co., Inc., Torrington, Conn.
Boston Gear Works Sales Company, Norfolk
Downs, Mass.

Used and Rebuilt Machinery

Badger-Packard Mch. Co., Milwaukee, Wis.
Bath & Co., Cyril J., Cleveland, O.
Bennett Mch. Co., 50 Church St., New York
Bernstein & Co., Geo. M., 549 W. Washing-
ton Blvd., Chicago

Broadway Machinery Co., 211 Centre St.,
New York, N. Y.

Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.

Carlson Machinery Co., Davenport, Iowa
Central States Machinery Co., 194 S. Clinton,
Chicago

Cincinnati Mch. & Supply Co., Cincinnati, O.
Clinton Mch. Co., 128 S. Clinton St., Chgo.

Co-Operative Mch. Co., Cleveland, Ohio
Davis Machinery Exchange, Toledo, O.

Detroit Machinery Exchange, Detroit, Mich.
Donahue Steel Products Co., 74th and
Ashland Ave., Chicago

Eastern Machinery Co., Cincinnati, O.
Emerman & Co., Louis E., 1761 Clinton Ave.,
Chicago

Empire Machinery Exchange Co., Inc.,
Cleveland, Ohio

Essley Machinery Co., E. L., 651 Washington
Bldg., Chicago

Foster Machinery Co., Cleveland, O.
Harris Bros. Co., 304 & Iron, Chicago

Hill, Clarke & Co., 649 W. Washington
Bldg., Chicago

Hyman & Sons, Joseph, Philadelphia
Indianapolis Mch. & Supply Co., Indian-
apolis, Ind.

International Mch. Co., Detroit, Mich.
Johnson & Sons Machinery Co., Wm. C.,
St. Louis, Mo.

Jones Machine Tool Co., Cincinnati, O.
Kinsey Co., E. A., Cincinnati, O.

Klauber Mch. Co., E. L., St. Louis
Lee Machinery Co., Inc., Detroit, Mich.

Little Co., W. F., Cleveland, O.
Lucas & Son, Inc., J. L., Bridgeport, Conn.

McCabe Lathes & Machinery Corp., J. J.,
149 Broadway, New York

McDonald Machinery Co., St. Louis
Manning, Maxwell & Moore, Inc., 27 No.
Jefferson, Chicago

Used and Rebuilt Machinery—Cont.

Marr-Galbreath Mch. Co., Pittsburgh, Pa.
Marsh Mch. Co., A. R., Cleveland, O.
Mid-West Machine Tool & Supply Company,
Davenport, Iowa

Miles Machinery Co., Saginaw, W. S., Mich.
Molitor Mch. Co., Chas., 118 S. Clinton St.,
Chicago

Morey and Co., Inc., 408 Broome St., N. Y.
Motch & Merryweather Machinery Co.,
Cleveland, O.

Nelson Machinery Co., Green Bay, Wis.
Norton-Broadway Mch. Co., Cincinnati, O.

O'Brien Machinery Co., Philadelphia
Osborne & Sexton Mch. Co., Columbus, O.

Oviatt & Co., D. C., Cleveland, O.
Palmer-Edwards Co., Flint, Mich.

Peninsular Machinery Co., Detroit, Mich.
Pruett Mch. & Tool Co., D. H., Cleveland,
Ohio

Randall Machinery Co., Cincinnati, O.
Reed-Prentice Corp., Worcester, Mass.

Reave-Fritts Co., 558 W. Washington, Chgo.
Reliance Mch. Sales Co., Pittsburgh, Pa.

Riverside Machinery Depot, Detroit, Mich.
Rosenfeld Mch. Co., 942 W. Lake St., Chgo.

Russell Machine Co., Pittsburgh, Pa.
Scott-Bansbach Mch. Co., 130 S. Clinton,
Chicago

Selfrent-Elsat Machinery Co., Dayton, O.
Simmons Machine Tool Corp., Albany, N. Y.

Stoehr Machinery Co., A. M., 418 Mid-City
Bank Bldg., Chicago

Strafer Machinery Co., Jersey City, N. J.
Strong, Carlisle & Hammond Co., Cleveland

Sun Machinery Co., Newark, N. J.
Syracuse Supply Co., Syracuse, N. Y.

Taylor-Hall Welding Corp., Worcester, Mass.
Toledo Machinery Exchange, Toledo, Ohio

Tubor-Velick & Co., 630 W. Lake St., Chgo.
United Mch. & Supply Co., St. Louis

Wertman Mch. Co., M. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.

White Mch. Co., A. D., 108 N. Jefferson
St., Chicago

Winterer, Herman L., Philadelphia

Vises, Drilling Machine

Armstrong-Hum Mfg. Co., 341 N. Francisco
Av., Chicago

Armstrong Bros. Tool Co., 308 N. Francisco
Av., Chicago

Marsh Machinery Co., A. R., Cleveland, Ohio
Martin Tool & Die Works, J. E., Springfield, O.

Paesman Bros., 707 W. Washington Blvd.,
Chicago

Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Vises, Machinists'

New Britain Machine Co., New Britain, Conn.
Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine

Hartford Special Mch. Co., Hartford, Conn.
Marsh Machinery Co., A. R., Cleveland, Ohio

Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Stevens Inc., John B., 27 Cleveland Place,
New York

Vises, Shaper

Sheldon Machine Co., 3253 Cottage Grove
Ave., Chicago

Welders, Electric Spot

Taylor-Winfield Corp., Warren, O.

Wheels, Grinding, Polishing & Sanding

Abrasive Wheel & Equipment Co., Inc.,
Philadelphia, Pa.

Wood Working Machinery

Frew Machine Co., Philadelphia, Pa.
Hendley & Whittemore Co., Beloit, Wis.

New Britain Machine Co., New Britain, Conn.
Porter-Cable Machine Co., Syracuse, N. Y.

Towsley Mfg. Co., John T., Cincinnati

Worms

Massachusetts Gear & T. Co., Woburn, Mass.
Jones Foundry & Machine Co., W. A., 4450
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Drill, Baker Nos. 525 & 314.
Lathe, Gisholt turret, 6" hole.
Motor, slip ring, 514 r. p. m., 100 h. p.
Punch, Cleveland 1/2 x 1/2, 26" th.

Punch & shear, d. e., 1/2 x 1/2.
Rolls, 6' and 8'.
Saw, friction, Ryerson 45".
Screw mch., No. 56 N. A., 4-sp.
Shaper, 16" Steptoe & Smith & Mills.

FOR SALE BY

Box 60, c/o Hitchcock Pub. Co., 508 So. Dearborn St., Chicago, Ill.

PYROMETER EQUIPMENT

- 7—Engelhard indicators 0-1600 degrees C.
- 2—Type R Engelhard recorders, 0-1200 degrees C.
- 3—Engelhard electric cold end boxes, 110 volt.
- 4—Wilson-Maeulen indicating pyrometers, 75-2000 degrees F.
- 1—Wilson-Maeulen double range indicator, 75-3000 degrees F and 75-1800 degrees F.

USED AND REBUILT MACHINERY

FOR SALE BY

Scott-Banabach Machinery Co., 130 So. Clinton St., Chicago, Ill.

Auto. screw mach., Cincinnati, 5-spindle, 1"	\$ 750.
Auto. screw mach., 14" Gridley 4 spindle model F	1,150.
Auto. screw mach., 24" Gridley 4 spindle model F	2,500.
Auto. screw mach., Cleveland, 1" Model A	150.
Bolt cutter, 2" D. & H., double head	300.
Boring mill horizontal 24" Lucas s. p. d.	2,300.
Boring mill horizontal 30" Rochester s. p. d.	2,500.
Boring mill horizontal 4" Rochester floor type, rot. table, motor drive, rapid power traverse	4,500.
Centering machine, Whiton swivel	75.
Drill, 21" Cincinnati sta. head, with tapping attachment	200.
Drill 24" Cincinnati sliding head with tapping attachment	325.
Drill, 1-spindle Allen h. s., b. b., 14" with pump	175.
Drill, 4-spindle Barr, plain bearing	325.
Drill, radial, 3" American sensitive	290.
Drill, radial 3" American plain cone drive, with tapping attachment	600.
Drill, radial 4" Bickford gear box drive, tapping attachment	1,150.
Drill, 20"-2-spindle Hoefler power feed	250.
Drill, 20" Superior, sliding head, back geared	325.
Filing machine, Cochrane-Bly, floor type	100.
Grinder, 26" Valley City disc	250.
Grinder, No. 65 Heald, with fixtures, b. b. spindle	900.
Grinder, No. 1 Cincinnati cutter and tool	300.
Grinder, new No. 2 Acme full universal cutter and tool 1400 lbs	500.
Grinder, No. 3 Norton universal cutter & tool, p. f.	450.
Grinder, No. 11 B. & S. plain 6"x32"	400.
Grinder, Landis 16"x42" crank shaft, 24" wheel	1,500.
Grinder, No. 2 Reid automatic surface	350.
Grinder, 12x12x48 Springfield Brandes mag. chuck & segment wheel	2,000.
Hammer, 50 lbs., No. 1 Standard drop	150.
Hammer, No. 5A High Speed riveting	400.
Lathe, 14"x8" Flather, quick change, taper and chuck	250.
Lathe, 16"x8" Davis quick change	550.
Lathe, 18"x9" Chard semi-quick change gear	400.
Lathe, 18"x11" Chard, semi-quick change gear	425.
Lathe, 22"x10" Davis quick change	800.
Lathe, 42"x20" Fifield with blocks to swing 60"	1,500.
Miller, Whitney, Standard and U. S., hand	125.
Miller, No. 3 Kempsmith plain, with dividing head	550.
Miller, No. 3B B. & S. heavy duty, all geared head, s. p. d.	2,000.
Miller, Briggs, G. & E. manufacturing, 16"	200.
Miller, No. 3 Becker vertical	325.
Miller, No. 4B Becker, vertical, no rotary	450.
Miller, No. 5 Becker vertical, no rotary	500.
Miller, No. 7 Becker, Lincoln type	150.
Miller, No. 21 Garvin power feed, oil pump	150.
Miller, Hendey, Lincoln type	100.
Miller, Ingersoll slab, 42"x36"x9"	1,750.
Oil separator, National, about 1/2 bushel	75.
Planer, 24"x24"x6" Cincinnati, 1 head	500.
Planer, 26"x26"x6" Cincinnati, 2 heads	650.
Planer, 24x24x8 Fitchburg, 1 head	400.
Planer, 32x32x8 Pond, 1 head	750.
Press, No. 5 R. & K. o. b. i., 5500 lbs.	825.
Saw, 6" x6" Racine h. s., belt drive	100.
Saw, 6x6 Peerless h. s., d. c. motor \$150, a. c. motor	175.
Saw, Racine metal band, nearly new	175.
Screw machine, P. & W. 1x4, complete	150.
Screw machine, No. 7 Foster 24", p. f. f. h.	750.
Shaper, 14" Davis, crank, single geared, vise and c/s	325.
Shaper, 16" Steptoe, crank, back geared, vise and c/s	375.
Shaper, 20" Steptoe, crank, back geared, vise and c/s	500.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s	850.
Shaper, 30" Ohio, crank, back geared, vise and c/s, nearly new	1,000.

USED AND REBUILT MACHINERY

Scott-Bansbach Machinery Co.—Continued

Shaper, 21" Milwaukee, crank, back geared, vise and c/s.....	\$ 650.
Shaper, 25" Steptoe, crank, back geared, vise and c/s.....	750.
Shaper, 24" Rockford universal combination.....	1100.
Slotter, 12" Putnam universal.....	1,000.
Turret lathe, No. 4 Briggs 14" friction head, full equipment.....	250.
Turret lathe, 24" Steinlee, 5 1/2" hole, side carriage.....	700.

FOR SALE BY

General Machinery Corporation,	170 Summer St., Boston, Mass.
Drill, Sibley 24" slid. hd., b. g., p. f.	Miller, Oesterlein No. 20 universal.
Forge, American No. 2 gas.	Miller, Burke No. 2 bench with p. f.
Furnace, oven American No. 16.	Motor, G. E. Co. 50 h. p., 1150 r. p. m., 550-3-60.
Lathe, Flather 14"x6" q. c. g., c. r.	Shaper, Smith & Mills 20", b. g.
Lathe, turret W. & S. 14" a. c. pl. hd.	

FOR SALE BY

Strafer Machinery Company,	Jersey City, N. J.
14th and Provost St.,	

BORING MILLS VERTICAL

14' Niles heavy, swing 15' 4".	72" N. B. P. heavy rapid traverse.
96" Cincinnati rapid traverse, m. d.	72" Niles light type low price.
96" Niles light type low price.	60" Cincinnati rapid traverse s. p. d.
72" Colburn rapid traverse spd. box.	51" N. B. P. speed box 16 speeds.
72" Betts heavy rapid traverse.	10'-16" Niles light type low price.
Portable boring bars, Underwood, 4"x8" with 12" heads, grd. feed \$200 each.	

DRILLS.

6' American motor on arm.	6' Cincinnati Bickford s. p. d.
5' Prentice speed box drive.	6' Bickford cone type.
4 1/2' Morris s. p. d.	32" Aurora upright.
22" Barnes upright.	20" Prentice upright.

GEAR CUTTERS

No. 5A Lees-Bradner hobbles.	No. 2 Bilton pinion cutters.
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GRINDERS.

18"x96" Norton plain, m. d.	24"x144" Landis universal.
12x20 Fitchburg plain.	8"x40" Morse plain, new.

LATHES.

40"x20' Pond blocks to 72"	44"x34" N. B. P. g. h. m. d.
48"x18' Fiefield cone.	22"x10' Drapier cone.
18"x8' Fairbanks 3-step c., d. b. g.	18"x8' Fay Scott 3 s. c., d. b. g.

MILLING MACHINES.

No. 3 Kearney Trecker s. p. d.	No. 2 Garvin hand miller.
Nos. 1 & 2 Kearney Trecker.	No. 3 Pedrick & Ayers plain.
22"x10' slab miller.	No. 1 Brown & Sharpe belt feed.

PIPE MACHINES.

6" Saunders, new dies, belt drive.	8" Curtis & Curtis, price \$100.
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PLANERS.

10'x10'x20' Niles 4 heads b. d.	48"x48"x16" openside D. & H.
45"x56"x12 Pond.	55"x56"x12' Pond.
36"x8' openside D. & H.	

PUNCHES AND SHEARS.

No. 3 H. & J. 36" t., double.	No. 4 H. & J. double 48" t.
Cleveland 24" t., cap. 1" x 1".	No. 3 H. & J., double angle.

MISCELLANEOUS.

Die slotter, Fox.	Rotators, 5 and 10 ton.
Elevator, d. c. m., portable.	Saw, No. 1 Klem metal band.
Generator, 100 k. v. a. Diesel engine.	Ship augers, 500.
Lathes, pattern makers.	Slotter, 24" Niles.
Miller, Burr spline.	Squaring shear, 10.
Press, forcing, 50 ton Lucas.	Straightening rolls, H. & J. 1" cap.
Roll, 8" capacity 1/2"	Straightener, wire core, to 5/16".
Roll, 30" tinsmith.	Trucks industrial storage battery.

USED AND REBUILT MACHINERY

FOR SALE BY

W. H. Hobbs Supply Co., - - - - **Eau Claire, Wis.**

Engine lathe, 24"x16' Lodge & Shipley, quick change gears, compound rest, double back geared, 3-step cone, countershaft.

Planer, 41"x36" 18' widened patent spur gear, two heads on rail, two on side, power feed, splendid condition.

One hundred other machines—send for list.

FOR SALE BY

Clinton Machinery Co., 126-128 S. Clinton Street, Chicago, Ill.

MILLING MACHINES.

34" King vert. power traverse feeds. No. 14 American plain.
No. 2 Cleveland universal. No. 1 Dow plain.

SHAPERS

24" American crank, b. g. 16" Barker crank, b. g.
21" Smith & Mills crank, b. g. 15" Potter & Johnson univ. table.

PUNCH PRESSES.

No. 4 Consolidated, o. b. i. 4" stroke. No. 33 Swaine, o. b. i.
No. 4 Toledo, o. b. i. No. 42 Toledo horning, 4" stroke.
No. 61 Bliss, s. s. reducing. No. 15 Torris-Wold, o. b. i.
No. 58 Bliss, s. s. reducing. No. 4 Cleveland, o. b. i.
No. 3 Consolidated, b. g. o. b. i. No. 19 Bliss, o. b. i. (3).

DRILL PRESSES AND RADIAL DRILLS.

3-sp. Henry & Wright, b. b. h. s. 24" Aurora, s. h. b. g. p. f.
3-spindle Reed-Prentice, b. b. h. s. 3' Wisconsin, ball bearing sensitive.
28" Superior, s. h. b. g. p. f. 98% new. 2-spindle Hoefler, 20" gang drill.
20-spindle Moline hole hog. No. 1 Knight milling and drilling.

MISCELLANEOUS.

Arbor press, No. 5 Atlas. Hack saw, 9x9 Peerless power.
Bolt cutter, 14" Landis. Hack saw, 6x6 Racine power.
Bolt cutter, 14" Acme. Hammers, Nos. 14B, and 4A High Speed.
Grinder, 6"x32" Norton. Oil separators, Nos. 1 & 2 American.
Grinders, No. 1 LaSalle surface (3).
Grinder, Dauber-Kratsch t. & c.

FOR SALE BY

Brownell Machinery Co., 150 Pine St., Providence, R. I.

BORING MILLS.

42" Bullard vertical.

DRILLS.

3' Prentice radial. 3' Prentice radial.

GRINDERS.

No. 6 Diamond disc. 20" Whitney wet tool.
No. 11 B. & S. plain. No. 1 B. & S. automatic surface.
No. 3 B. & S. cutter and reamer. 14" Blount wet tool.

LATHES.

30"x20' Fitchburg. 24"x16' LeBlond.
30"x10' American. 22"x26' Lodge & Shipley.

METAL CUTTING MACHINES.

No. 4 Marvel hack saw 6x6. 3" H. & R. cutting-off machine.
12" H. & R. metal cutting band saw.

MILLING MACHINES.

No. 4-B Brown & Sharpe heavy No. 1 B. & S. plain, open belt.
plain, s. p. d. No. 13-B B. & S. manufacturing.
No. 2 B. & S. plain, rack feed. No. 12 B. & S. plain.

PLANERS.

26"x26"x6' Whitcomb planer, 2 hds. 17"x17"x4' Whitcomb.

MISCELLANEOUS.

Blower, No. 8 Boland (2). Screw machine, No. 0 B. & S. plain.
Cornice brake, 4' double truss. Shaper, 24" Hendey friction.
Gear cutter, No. 24 Bilton. Woodworker, No. 110 Crescent univ.

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air comp., 8"x8" Bury "BB", 79 c.f.
Air comp., 8"x8" I.-R. E.R.-1. 138 c.f.
Air comp., 10"x10 I.-R. N.-E-1. 179 c.f.
Air comp., Bury, duplex, 815 c. f.
Automatic, No. 55 Nat. 4-spindle.
Automatic, 24" Cleveland Model A.
Bolt cutters, 14", 2", 24", 4" Landis.
Bolt cutters, 14", 2" Landis, dbl. hd.
Bolt cutters, 14", Landis, 3 hd., m. d.
Boring mills, vertical, 30" to 16".
Boringmill, 84" Bickford, m. d. 95¢ new
Boring mill, horiz. 4-spdl., Newton.
Brake, 8"x16 ga. Robinson.
Brake, press, 12"x14" Cincinnati.
Brake, 5"x10 ga. press type.
Brake, 10" 6" Ohl, 10 ga., press type.
Bulldozer, No. 4 Williams & White.
Bulldozer, Nos. 25 and 28 W. & W.
Drills, 14" to 38".
Drill, No. 2 Colburn.
Drill, 2-sp. b. b. Elmore, 3", sens.
Drill, mult., No. 5 Fox, 10-spindles.
Drill, radial, 4" American, t. a., b. d.
Drill, radial, 6" Prentice, s. p. d.
Flanger, McCabe, 4" capacity.
Gear cutters, spur and bevel.
Gear cutter, 48" Newark, b. d.
Gear planer, 24" Gleason, bevel.
Grinder, dbl., 14"x14", 230 v., 3-60.
Grinder, 6"x32" P. & W. univ., b. d.
Grinder, 10"x52" Norton, univ., b. d.
Grinder, 12"x32" Landis, univ., b. d.
Grinder, 12"x36" Norton, b. d.
Grinder, No. 4 Besly, disc.
Grinder, plain, 16"x72" Landis.
Grinder, planer type, 51" Springfield.
Grinder, face, 84" Diamond, m. d.
Grinder, surface, No. 16 Blanchard.
Grinder, swing, self cont. 230 v.-3-60.
Grinder, tool & cutter, No. 2 Cinti.
Hammer, 65-lb. Champion, upright.
Hammer, 80-lb. Bradley, cush. helve.
Hammer, 100 lb. Bradley, upright.
Hammer, 150-lb. Dupont, upright.
Hammer, 200-lb. Bradley, upr. helve.
Hammer, No. 2-B Nazel.
Hammer, No. 3-B Nazel, m. d.
Hammers, steam 600 lb. to 6000 lb.
Hammer, 2500-lb. Bement, sgl. fr.
Hoists, 1 to 34-ton Shepard, 220 v.
Keyseater, No. 2 Mitts & Merrill.
Lathes, 12" to 60".
Lathe, 13"x48" South Bend, b. d.
Lathe, 36"x30" American, b. d.
Lathe, 48"x20" Bridgeford, grd. hd.
Lathe, Lo-Sw., 34"x60" Fitchburg.
Lathe, brass, 18"x6" Fox.
Lathe, turret, 26" Libby.
Lathe, turret, No. 2 W. & S. g. f. h.
Lathe, turret, No. 4 W. & S.
Lathe, turret, No. 6 W. & S., p. f.
Miller, plain, No. 4 Cinti. 14" d. h.
Miller, univ., No. 4 B. & S. 12" d. h.
Miller, slab, 24"x20"x14" Ingersoll.

Miller, vert. No. 5-C Becker.
Pipe machines, 2" to 12".
Planer, 48"x42"x12" Cincinnati, 2 hds.
Planer, 72"x72"x20" Bement-M., 4 hds.
Planer, o. s., 48"x48"x14" Detrick & Harvey, m. d.
Planer, o. s. 96"x72"x26" D. & H.
Planer, rotary, 48" Niles, m. d.
Press, hyd., 60-ton Watson-Stillman.
Press, hyd., 50-ton Lourie.
Press, No. 20 Bliss o. b. i.
Press, geared, No. 34 Toledo.
Press, No. 37 Bliss, s. s., 6" stroke.
Press, No. 745 Bliss, s. s.
Press, wheel, 150-ton Caldwell.
Press, wheel, 400-ton Niles.
Punch, hor., Cleveland, 1" thru 1".
Punch No. 2 L. & A. 12" thr., arch jaw
Punch, No. 2 L. & A. 18" thr., arch jaw
Punch No. 1 L. & A. 30" thr., 14"-1".
Punch, No. 14 W. & W., d. e. 14"-1".
Riveter, Hanna, 18" thrt., 15" gap.
Rolls, angle bend., 2"x2"x4" Bertsch.
Rolls, a. b., 1-B Buffalo 3"x3"x8".
Rolls, bending, 42"x14 ga. Bertsch.
Rolls, bending, 54"x4" Cincinnati.
Rolls, bending, 8"x4" Bertsch.
Rolls, bending, 10"x4" Cleveland.
Rolls, bending, 12"x4" Niles.
Saw, metal band, 26" Crescent.
Saw, cut-off, Yates double end, new.
Saw, friction, Ryerson, Nos. 2 & 3.
Saw, hack, No. 7 Atkins, 8"x8".
Saw, hot, 84" Mesta sliding frame.
Sandslinger, 11" tractor type.
Shaper, 16", 20" & 24" Gould & E.
Shaper, 24" Stockbridge, b. d.
Shear, angle, L. & A., 6"x6"x4".
Shear, alligator, Garrison, 14" sq.
Shear, alligator, No. 5 Canton, 3" sq.
Shear, alligator, United, 6"x6".
Shear, bevel, Lennox 4".
Shear, 20"x16" ga. Bliss power.
Shear, sq. 36"x16 ga. Niagara, b. d.
Shear, squar. 42"x3/16" Canton, b. d.
Shear, sq. 72"x14 ga. Bertsch, b. d.
Shear, sq., 10"x3/16" W. & R., m. d.
Shear, 10"x8" Morgan, 24" gap.
Shear, 12"x14 ga. Peerless, 95¢ new.
Shear, plate, 84"x3" H. & J.
Shear, plate, 10"x4" H. & J.
Shear, plate, 10"x4" H. & J. No. 4, m. d.
Shear, plate, 144"x14" H. & J. No. 7.
Shear, plate, United, 156"x4".
Shear, rotary, No. 6 Quickwork.
Straightening rolls, Brightman 1"-4".
Straight'r, 48" United, 16 ga. 13 rolls.
Straightener, Nat. 60"x14 ga. 17 rolls.
Straightener, beam, No. 4 H. & J. m. d.
Swaging machine, 1" Langelier.
Testing machine, 100,000 lbs.
Welder, Lincoln, 220 volt, 300 amp.
Welder, Gibb spot, 8", 22" thrt.

USED AND REBUILT MACHINERY

FOR SALE BY

J. L. Lucas & Son, Inc., • • • **3 Fox St., Bridgeport, Conn.**

Boring mill, 42" Bullard, serial 6968, 6 h. p., a. c., variable speed motor drive.
Grinder, Reid surface, magnetic chuck, new.
Grinder, No. 3 Abrasive surface, range 22x8x12.
Grinder, No. 1 LeBlond tool and cutter, power feed, complete equipment, nearly new.
Lathe, 14x6 Hendey yoke head, draw bar, taper, relieving.
Lathe, 18x10 Hendey yoke head.
Lathe, 28x14 Bridgeford geared head engine, quick change.
Miller, No. 2B Brown & Sharpe plain, single pulley drive, rebuilt, excellent condition.
Miller, No. 2M Cincinnati universal, single pulley drive, complete equipment, very late machine.
Miller, No. 2 Cincinnati high power vertical, single pulley drive, 1 year's use.
Press, No. 3½ V. & O. inclinable, stroke 2".
Press, No. 21B Bliss inclinable, stroke 2½" manufactured in 1925.
Shaper, 24" Stockbridge, cone driven.

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.

Arbor presses, Eames No. 6.
Bolt cutter, Acme single head, 1½".
Boring mill, Bickford 36", 2 heads.
Boring mills, 6 Bullard 42" low price.
Broaching machine, LaPointe No. 3.
Chain hoists, 1, 1½, 2 and 3-ton.
Demagnetizer, Walker.
Drill, Baush 18-spindle.
Drills, Baker, heavy duty (2).
Drills, Leland-G 1-sp. h.s., b.b. floor.
Drills, Kokomo 1-spindle, Sipp 1 and 2-spdl., h. s., b. b.
Drills, 20", 24", 26 & 28" b. g., & tap.
Drills, Prentice 3"; Bickford 4" radials.
Gear hobber, Gould & E. 24".
Grinders, Landis piston, motor drv.
Grinder, Heald No. 60 cylinder.
Grinders, modern internal; Blount 30", wet (3), Heald 8", mag. ck.
Grinders, St. Louis No. 9.
Grinder, Reed-Prentice vert. surf., 2 chucks.
Grinder, Landis 16"x66" crankshaft.
Hack saws, 4x4, 6x6 & 2 Racine Jrs.
Atkins 4x4" Marvel No. 2; Racine h. s.
Hammer, Hament-Niles 1100 lb. st.
Lathes, Bridgeford 36"x12", q. c. g.; American 30"x10" q. c. g., d. b. g.; L. & S. 36"x16" q. c. g., d. b. g.; South Bend 34"x14"; American 20"x10" q. c. g.; Whitcomb-Blaisdell 22"x8" q. c. g.; Monarch 16"x8"; C. & J. 15"x8" all q. c. g.; 40 other assorted sizes.
Milling machines, Ohio No. 20 plain.
Kemp Smith No. 1 plain; Hendey No. 2 universal; Ohio 34; LeBlond No. 3-H plain; Brown & S. No. 3 plain; B. & S. No. 3 H pl., s. p. d.; American No. 1½ plain; Cincinnati No. 3 plain; Becker No. 25 plain.
Milling and drilling mchs., Knight No. 1½ with power feed.
Pipe machine, Curtis 3", motor dr.; Merrill 4" belt drive, Jarecki 2"; E. C. & B. 16".
Planers, Gray 28"x28"x6", 1 head; Cincinnati 36"x36"x18" 2 heads; Pond, 36"x36"x12" table, 18' bed, 2 heads.
Punches, W. & W. No. 17 punch.
Punch presses, Swaine Nos. 27, 29, 31; Ferracute No. 1 o. b. i., (2) Federal Nos. 1, 2, 3; Toledo horning press; Ferracute horning; Bliss No. 19-C; Willard No. 3-A.
Pyrometer, Thwing elec., with rec.
Rolls, Badger 50" Pyramid power rolls, 5" dia. ½" cap.
Screw machine, Cleveland 2½" auto.; P. & W. No. 2½ hand; Foster No. 3 hand; Woods No. 2 tilted turret head; Bardons & O. No. 7; National-A. No. 52 auto., 4-spindle, m. d.; Milholland b. g. hand; Foster No. 7 hd. b. g.
Shapers, S. M. 16"; 24" Queen City 24" back geared, Barker 18" b. g.; American 18" back grd.; American 20" b. g.; G. & E. 16", b. g.; Smith & Mills 29" b. g., s. p. gear box; Niles traveling head; Milwaukee 16" b. g.; Whipp 14" s. g.; Rockford 20" b. g.; S. & M. 21" and 26" b. g.; Cincinnati 27" b. g.
Shears, 60" thrt. rotary slitting, (2).
Shear, Mashalltown No. 134.
Tapping mch., Garvin No. 2X auto.
Threading machine, Webster & Perks 4-spindle.
Welders, butt, Federal, ½" rds.

USED AND REBUILT MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

58 Water St., Pittsburgh, Pa.

Air comp. 8x6, dble cyl. Gardner.
Air comp., 4 $\frac{1}{2}$ x5" Ingersoll-Rand.
Air comp., 4 $\frac{1}{2}$ x4 $\frac{1}{2}$ Curtis, 24 cu. ft.
Arbor presses, Nos. 0, 1, 2 & 3.
Arbor press, No. 5 Atlas.
Bender, angles, hand, No. 9 Buffalo.
Blowers & exh., 6, 8, 9 & 16" opening.
Blowers, Nos. $\frac{1}{2}$ and $\frac{3}{4}$ Root.
Bolt cutter, 1 $\frac{1}{2}$ " Morgan, double hd.
Bolt cutter, 1 $\frac{1}{2}$ " Acme, triple head.
Boring mill, 30" King, turret head.
Brake, 8"x12 ga. Power, Chicago.
Burnishing barrel, 24"x16" glass lined
Cold header, 1 $\frac{1}{2}$ " W-F., solid die.
Cold header, $\frac{3}{4}$ " W-F., solid die.
Cold saws, Nos. 11 $\frac{1}{2}$ and 12 Higley.
Crane, 5-ton P. & H. 44' 6" span, a.c.
Crane, 10-ton, 40' span, 220 v. d. c.
Draw bench, 40" W-F., 50 h. p. mtr.
Drill, 20" Prentice, plain.
Drill, 25" Superior, b. g., s. h.
Drill, radial, 30" Taylor & Fenn.
Drill, radial, 7" Prentice, s. p. d.
Drill, radial, 5" Prentice.
Drills, radial, 3' & 3 $\frac{1}{2}$ " Bickford.
Drills, sensitive floor, 10", 12", 14".
Flanging mch. Sievert, 10 ga. hand.
Forge, 92-D. Buffalo, 27x33".
Forging mach., 3" Acme, steel, m. d.
Forging and rivet header, 1" Ajax.
Furnaces, oil tempering, 10"x10"x10".
Gear and pinion cutter, No. 3 Sloan.
Grinder, No. 1 Norton universal
tool and cutter.
Grinder, No. 3 Brown & Sharpe
univ. cutter & reamer.
Grinder, No. 11 B. & S., plain.
Grinder, surface, No. 1W. & M., m. d.
Grinder, 12" Bristol, rotary surface.
Grinder, d. e. safety, 16"x3" wheels.
Grinder, No. 60 Heald, 19" arm.
Hack saws, 8" Atkins, mtr. 1/60/220.
Hammer, 40 lb. & 75 lb. Bradley.
Hammer, 2-B. Nazel, belt and motor
Hammer, 2500 lb. Chbg., s. f. steam.
Hammers, atm. a. f. 600, 1100, 1500 lbs.
Hammer, 1000 lb. Chbg., steam drop.
Hammer, 250 Chbg. board drop.
Hoists, air, 700, 800 & 1300 lbs.
Keyseaters, Nos. 0 and 2, M. & M.
Keyway cutter, 24" Morton, cap. 24".
Lathes, coil winding, No. 3.
Lathe, 9"x3" Shepard, speed.
Lathe, 15"x6" Sidney, q. c. g.
Lathe, 16"x7" So. Bend, with chuck.
Lathe, 18"x8" Cisco, q. c. g.
Lathe, 20"x8" Am., q. c. g., chuck #250
Lathe, 18"x9" Lehman, q. c. g. t. a.
Lathe, 16"x10" Monarch, grd. hd., t. a.
Lathe, 20"x10" Schellenbach, g. h. t. a.
Lathe, 48"x20" Bridgeford, g. h., t. a.
Lathe, 21"x14" LeBlond, g. h. (Mfg).
Lathe, 22"x10" Hamilton, g. h., s. p. d.
Lathe, 36"x64" Bridgeford gun bor.

Lathe, 20"x10" Sidney, q. c. g., t. a.
Lathe, pattern maker's, 24"x11"
Miller, pl. No. 2 Cincinnati, cone.
Millers, No. 3 Cin. pl. geared feeds.
Miller, No. 0 Kempsmith univ.
Miller, duplex Knight, table 8 $\frac{1}{2}$ x32".
Motor, 1 $\frac{1}{2}$ & 5 h. p. 1/60/110-220.
Motor, 15 h. p., 3/60/220/870.
Motor, 7 $\frac{1}{2}$ h. p., 3/60/220/1800.
Motor, 10 h. p. Century, 3-60-220-1160.
Motor, 10 h. p. a. c., 3/60/220/1740.
Motors, 20 & 50 h. p., 3/60/220/900.
Motor, 20 h. p., 3/60/220/1800.
Paper slitter, 18" Jacques, bench.
Pipe machine, 4" Williams, m. d.
Planers, 48x48x20", 3-heads, Gray.
Planers, 33x33x10", 2-hds., W. & P.
Planer, 20"x16"x45" New Haven.
Planer, 22"x22"x5" Cincinnati, 1 hd.
Press, No. 3A Bliss, adj. table.
Press, No. 2 Barouth o. b. i., 16,000 lb.
Press, No. 19 Bliss, o. b. i., plain.
Press, No. 1 $\frac{1}{2}$ Robinson o. b. i., pl.
Press, No. 1 Toledo o. b. i., pl. m. d.
Press, No. 14 Stiles (Bliss) plain.
Press, 32 Ferracute, punch.
Press, punch type, United, 15,000 lb.
Press, D. G. 62, Ferracute, s. s.
Press, No. 3 Massillon, trimming.
Presses, No. 87 Niagara, screw.
Punch, 30" thrt., 1"x1" m. d., s. e.
Punch, Rapid, 20" tht., 1"x $\frac{1}{4}$ ", m. d.
Punch, horiz., 1 $\frac{1}{2}$ x1": 13" tht, m. d.
Punch & shear, 36" Cleve. e. f. a. j.
Punch, coping, steel plate, 13" thrt.
36" die space, 2 holes 1"x1" m. d.
Riveter, Allen jaw, 36" cap, 1 $\frac{1}{2}$ ".
Riveter, $\frac{1}{2}$ " Shuster rotary, belt.
Rolls, bending, 10"x4" initial, d. e.
Rolls, bending, 14"x4" pyramid, d. e.
Saw, Newton, 62" blade, comb.
Saw, Burke, 12" blade, capacity.
Saw table, No. 260 F. & E., (wood).
Screw mche., 10" P. & W. pl., w. fd.
Shaper, 6" Pratt & Whitney.
Shaper, 12" Springfield, crank.
Shaper, 15" Kelly, crank, vise.
Shaper, 16" American, b. g. crank.
Shapers, 16" S. & M. American.
Shaper, 26" Smith & Mills, b. g., cr.
Shear, alligator, Canton 2 $\frac{1}{2}$ ", No. 4.
Shears, foot, 62"x18 ga.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, No. 2 Niagara, hand.
Shear, rotary bevel, $\frac{1}{2}$ ", m. d.
Shear, squaring, 8"x14 ga. power.
Shear, squar., 72"x14 ga. Niagara.
Shear, squaring, 60"x14 ga. Canton.
Turbo compres., Spencer 5400 c.f.m.
Turbo-generator, 500 kw, 3/60/2300.
Turret lathe, 13" Gisholt, 2 $\frac{1}{2}$ " h. s.
Turret lathe, 2"x24", Jones & L.
Turret lathe, 18" Warner & Swasey
Turret, vertical, 30" King s. p. d.

USED AND REBUILT MACHINERY

FOR SALE BY

The Bluffton Manufacturing Co., Findlay, Ohio

HEAT TREATING FURNACES

Two Bellevue heat treating furnaces, equipped with oil burners, in fair condition, one No. 211, the other smaller, for only \$100. each.

FOR SALE BY

Oliver H. Van Horn Co., Inc., 522-524 Camp St., New Orleans, La.

Boring mill, 5' Bullard, cone drive	\$1,500.
Miller, No. 4 LeBlond universal, cone drive, complete	2,200.
Pipe expanding machine, Lovekin, 6" capacity	500.
Planer, 36"x36"x12' Cincinnati, 99% new	3,500.
Punch, Beatty, 48" throat, 1" capacity	900.
Tapping machine, Acme 4-spindle nut, 90% new	150.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

PRESSES.

No. 723 Toledo double action drawing.
No. 266 Consolidated double action cam drawing.
Lourie hydraulic, 20 & 30 ton.

PLANERS.

24"x22"x 5' 36"x30"x18' Hamilton.
27"x27"x 7' Smith & Silk.

SHAPERS.

16" Steptoe b. g. crank.
16" Kelly b. g. crank
20" Steptoe plain crank.
34" Barker crank.
28" Cincinnati b. g. crank.

DRILLS.

28" arm Drees radial.
42" arm Morris radial.
20" Canedy-Otto.
22" Barnes back geared.
25" Barnes back geared.
32" Prentice sliding head.

MILLERS.

No. 3 Rockford hand.
No. 4 Brown & Sharpe universal.
Hendey, Lincoln.

LATHES.

15"x10' Cisco, q. c. g.
16"x 8' Monarch q. c. g.
16"x10' Sidney, q. c. g.
20"x14' Monarch, q. c. g.
24"x10' LeBlond.
24"x12' Economy, q. c. g.
50"x24' Niles-Bement-Pond.
60"x12' New Haven turning.

BORING MILLS.

10' Niles vertical, 2 heads.
42" Niles, 2 heads.
36" Gisholt turret head.
No. 1 P. & H. horizontal boring and drilling machine.

PIPE & BOLT THREADING MACHINES.

1" to 4" Williams.
2 1/2" to 6" Bignall & Keeler.
2" Standard.
3" Acme.

SCREW AND TURRET MACHINES.

3"x24" J. & L., geared head.
3"x26" J. & L., geared head.
No. 6 Warner & Swasey cone head.
2" Warner & Swasey hollow hex.
No. 6-A Potter & Johnson (2).

TRAVELING CRANES.

15 ton 76' span Toledo.
25 ton 80' span P. & H.
30 ton 80' span Case.
10 hand cranes, 14' to 42' span.

MISCELLANEOUS.

Bulldozer, No. 3.
Bulldozer, No. 9.
Furnaces, cyanide hardening.
Oil separator, National.
Punch, horizontal, 1" in 1".
Punches & s. 23" throat, 1/4" in 1/4"
Punch & shear, No. 15 Williams-White, 20" throat.
Shear, Lennox, rotary bevel.
Swager, No. 1 Dayton.

USED AND REBUILT MACHINERY

FOR SALE BY

Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass.

WELDERS

SPOT

Federal 20 k. w.
Thomson 10 k. w.
Winfield 7½ k. w.
Detroit 7½ k. w.
Thomson 5 k. w. power driven.

BUTT

Toledo 7-C. foot operated.
Thomson 2A.
Toledo 10B.
Federal 11A.
Winfield B 5017.

Every welder rebuilt and guaranteed.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

MILLING MACHINES.

48" Niles.
24" Bullard rapid production.
No. 2B Kearney & Trecker univ., incl. vert. and slotting att.
No. 3-B Milwaukee univ., dbl. arm.
No. 3-B Milwaukee plain, dbl. arm.
No. 2 Owen universal.
No. 2 B. & S. plain, motor drive.
No. 2 B. & S. plain.

No. 2 Rockford plain.
No. 1½ Brown & Sharpe plain.
No. 13 Garvin plain.
Gooley & Edlund production.
No. 4 Becker vertical.
Garvin duplex production.
24" Binns horizontal.
24"x8" Ingersoll plain production.
Large variety smaller sizes.

LATHES.

36"x16" Bridgeford, grd. hd., q. c. g.
26"x14" Davis, q. c. g.
26"x13" Wickes, semi-quick chg. gr.
24"x 8" Hendey taper, late type.
20"x10" Le Blond q. c. g., 3½" hole.
24"x12" Bradford q. c. g.
16"x10" Davis, q. c. g.

18"x 8" Flather q. c. g., taper.
18"x 8" Rahn-Larmon, q. c. g.
18"x 8" Pratt & W. q. c. g., collets.
18"x 8" Springfield, q. c. g.
18"x 8" Greaves-Klusman q. c. g.
16"x 8" Cincinnati, q. c. g., taper.
14"x 6" Bradford q. c. g.

GEAR CUTTERS.

8"x22" Fellows gear threader, m. d.
No. 3 Barber-Colman auto. gr. gen.

Brown & Sharpe No. 13 gear cutter.
4" Waltham auto. gear cutters (4).

RADIALS AND DRILLS

36" Mueller gear box.
3" American sensitive.
36" Cincinnati-Bickford.
28" Snyder sliding head.

24" Aurora sliding head, t. a.
20" Moline, No. 5 Morse taper.
4-spindle Turner turret.
6-spindle Barnes, g. b., p. f.

PRESSES AND SHEARS

8" Toledo square shear, 3/16".
5" steel sq. shear, 12 gauge.
52"x16" gap square shear.
1500 lb. W. & W. drop drop hammers.
300 lb. Beaudry trip hammers.

No. 5A Toledo.
No. 5 Consolidated.
No. 1 Consolidated.
No. 10 Robinson geared arch 8" str.
Smaller shears and brakes.

Large variety and sizes of rotary shears, headers, etc.

SHAPERS AND PLANERS.

24" Gould & Eberhardt.
16" Smith & Mills geared crank.
18" Smith & Mills crank.
17" Flather crank.

16" American geared crank.
14" Smith & Mills crank.
15" Hendey tool room.
22"x6" Gray planer.

SCREW MACHINES AND TURRET LATHES.

No. 4 W. & S., b. g., friction head.
No. 2 Warner & Swasey.
No. 2 W. & S. hollow hex. turret.
No. 2, 1, 0 B. & S. formers.

No. 2 Brown & Sharpe semi-auto.
No. 6 Warner & Swasey.
24" Jones & Lamson.
4", 1" Cleveland (5).

MISCELLANEOUS.

Bolt cutters, 1", 1½" Landis.
Bolt cutters, 1", 1½" (3).
Keyseaters, Nos. 0 & 2 Becker.

Keyseaters, Nos. 1 and 2 Davis.
Tappers, ½" Garvin, Pratt & Whitney.
1" Landis 8" Geometric gear cutter.

Large stock of lathes, punch presses, plain and universal grinders, 24", 4", 8", 8", 10" power squaring shears, tappers, several hundred Warner & Swasey, Potter & Johnston, etc., box, boring tools etc.

USED AND REBUILT MACHINERY

FOR SALE BY

Fitchburg Grinding Machine Corporation, Fitchburg, Mass.

LATHES.

Putnam 14"x6'.
Greaves-Klusman 18"x8'.
16"x9' LeBlond.

Perkins threading 21"x10'.
New Haven 32"x12'.

PLANERS.

42"x36"x22' Whitcomb.
22"x22"x6' Whitcomb.
17"x20"x8' Whitcomb.

30"x30"x8' Powell, 2 heads.
4', 4-spindle Radical screw mche.

TURRET LATHES AND SCREW MACHINES.

3x26" J. & L., chuck equipment,
double spindle.

24x26" Greenlee.
21" Gisholt.

MILLERS.

No. 1 Steptoe.

BORING MILLS.

3"x24" Rockford.

24" Reed-Prentice.

FOR SALE BY

Davis Machinery Exchange, 1-3-5 So. St. Clair St., Toledo, Ohio

Air compressor 4x5 Ingersoll-Rand.
Air compressor, 6x6 Chicago pneu-
matic, tank.

Air compressor, 6x5 Ingersoll-Rand.

Band saw, 10" Napier metal cutting.

Band saw, 9" H. & R. metal cutting.

Bolt threader, 1 1/2" Landis.

Bolt threaders, 1 1/2" and 2" National.

Drill, 20" Barnes camel back.

Drill, 20" Rockford, b. g. and p. f.

Drill, 20" Champion, b. g. and p. f.

Drill, Leland-Gifford high speed,

motor drive.

Drill, No. 310 Baker hvy. duty, (2).

Drill, 4" Hammond hinged arm

radial.

Drill, 4-spindle Foote-Burt rail.

Drill, 6-sp. Nat. Acme horizontal.

Grinder, No. 1 Greenfield plain.

Grinder, 24" Diamond dbl. end disc.

Grinder, No. 1953" Besly vert. disc.

Grinder, 8"x18" Ott.

Grinder, No. 60 Heald cylinder.

Grinder, No. 1 Fraser cylindrical.

Grinder, Walker universal.

Hack saw, 6"x6" Marvel power.

Hammer, 500 lb. Mayer upright.

Hammer, 3" Schuster riveting.

Hammer, No. 1 1/2-B High Speed

riveting, m. d.

Keyseater, No. 0 Mitts & Merrill.

Keyseater, No. 2 Davis.

Keyseater, No. 2 Baker.

Lathe, 12"x6" Hendey q. c. g.

Lathe, 14"x6" American q. c. g.

Lathe, 14"x6" Monarch q. c. g., chuck

Lathe, 16"x6" Monarch q. c. g., chuck

Lathe, 18"x8" Sidney q. c. g., hvy. duty

Lathe, 16"x8" Monarch q. c. g., chuck

Lathe, 22"x9" National quick change

geared, chuck, g. h., s. p. d.

Lathe, 18"x10" American q. c. g., ck.

Lathe, engine, 18"x7" Lehmann, q.

c. g., chuck.

Lathe, 24"x12" American q. c. g.,
heavy duty.

Lathe, engine, 14"x8" Walcott, q. c.
g., chuck

Lathe, 19"x14" LeBlond q. c. g., ck.

Lathe, engine, 17"x8" Oliver, q. c.

g. chuck.

Lathe, engine, 24"x12" Greaves-K.,

l. c. g.

Mill, No. 4-B Becker vert., c. pulley

Mill, No. 3V Toledo vertical, s. p. d.

Mill, No. 3-B B. & S. plain, s. p. d.

Mill, No. 2 Brown & Sharpe univ.,

index head, and vise.

Mills, Nos. 1 & 2 Kempsmith vises.

Mill, No. 6 Whitney hand.

Miller, Fox hand.

Press, arbor, No. 28 Atlas.

Press, arbor, No. 3 Greenerd.

Press, No. P1 Ferracute s. b.

Press, No. P2 Ferracute s. b.

Press, No. 4 Adriance o. b. i.

Press, No. 17 Toledo deep throat.

Press, Bliss double crank, flywheel.

18"x24" bed.

Screw machine, No. 1 Warner & S.

Screw machine, 1 1/2"-14" Cleveland

automatic, model A.

Shaper, 10" Gould & E. crank.

Shaper, 16" Smith & Mills crank.

Shaper, 16" American crank b. gr.

Shaper, 20" Kelley crank, back gd.

Shaper, 20" Mattison crank, b. g.

Shaper, 24" Milwaukee crank, b. g.

Shaper, 28" Smith & Mill crank, b. g.

Shear, Lloyd Booth geared alligator,

12" blade.

Turret, lathe, No. 5 Foster, power

feed to turret and cross-slide.

Turret lathe, No. 7 Foster, power

feed to turret and cross slide.

Welder, Taylor spot, 50 k. w., 60 cy.,

440 v.

USED AND REBUILT MACHINERY

FOR SALE BY

Indiana Machinery Co., Corner Murray & Clinton, Fort Wayne, Ind.

Lathe, Niles 22"x12', motor driven, a. c. motor, chuck.....	\$350.
Lathe, Niles 24"x14', cone head.....	300.
Planer, Niles 48"x48"x14', two heads.....	750.
Planer, Lodge & Davis 24"x24"x6'.....	300.
Radial drill, Niles 6', full universal, motor driven through gear box.....	750.
Radial drill, Niles, 5', full universal, single pulley, gear box drive.....	650.
Radial drill, American 3', cone drive.....	400.
Radial drill, Fosdick 2 1/2', cone drive.....	250.

FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

LATHES.

42"x17' 4 1/2" Bement-Miles.
37 1/2"x14' Johnson d. b. g., q. c. f., t. a.
32"x12' Pittsburgh, heavy duty, q. c. g.
27"x12' Bullard.

26"x11' Wickes, q. c. g.
25"x10' Niles, q. c. g.
19"x10' Draper, patent head,
and many others.

TURRET LATHES.

3 1/2"x29" Pond, triangular pattern.
3x36" Pratt & Whitney, hollow hex.
19"x7' Fay & Scott, back grd.
No. 22 1/2' Garvin Monitor.
14"x 4' Warner & Swasey.

No. 3 Foster sc. machines 1-5/16" wire feed, (2).
1 1/2"x9" Cincinnati-Acme, wire feed.
No. 4 B. & S., bar feed, all auto. fds.
No. 2 Smurr & Kamen, wire fd., (5).

DRILL PRESSES.

43" Almond, sens. radial, post type.
40" Barnes horizontal radial.

26" Aurora, sliding head.
24" Foote-Burt heavy duty.

MILLING MACHINES.

No. 3 Cincinnati, table 9 1/2"x50 1/2".
No. 5 Becker Brainard, vertical.
No. 3 Brown & Sharpe, plain, cone type.
No. 3 Hendey, q. c. g.

No. 3 Becker-Brainard, new model, q. c. g., vertical attachment.
No. 3 Becker universal back geared, quick change geared.
No. 1 Van Norman hand miller.

PLANERS.

48"x37"x9' Sellers, 2 heads.
48"x48"x12' Gray, 2 heads.

48"x36"x14' Cincinnati, 4 heads.
30"x30"x8' American, 1 head.

BORING MILLS.

42" Bullard, 2 swivel heads, (2).
Boring mill, No. 1 Sellers hor. 2 1/2" bar.
Boring mill, car wheel, 60" Newton.

Boring, drilling and milling machine, Bement-Miles horiz., 4 1/2" bar, 14' 6" bet. heads, with revolving table.

PIPE MACHINES.

4" & 8" Eaton, Cole & Burnham.

4" Armstrong, No. 60.

MISCELLANEOUS.

Arbor press, No. 3 Greenerd.
Arbor press, No. 8 Greenerd, 36" bet. columns.
Arbor press, 30 ton Weaver.
Centering mche., 5" Whiton, dbl. sp.
Electric hoists, 1-ton cap. (5).
Gear shaper, No. 35 Fellows, straight and helical heads.
Generator, No. 100 Oxweld acetyl.
Grinder, 13 1/2"x5' Landis, universal.
Grinder, No. 8 Diamond, double end, heavy type.
Grinder, disc, No. 17 Besly.
Grinders, double end electric.
Hammers, 15, 25 & 40 lbs. Bradley helve.
Hammers, 50 lb. Little Giant.
Hammers, 60 lb. Bellefonte upright, 2.

Presses, Waterbury-Farrel d. a., 2 1/2" 8" strokes, 25" bet. housings, auto. roller feed, with cut-off attach., wt. 26000 lbs., new, (3).
Punch or gate shears, 72" Cleveland multiple, 15" throat.
Punch presses, all sizes, (18).
Riveter 3/16" Grant on column.
Riveter, air, 6' gap Allen, cap. 1 1/2".
Riveter, air, 6' gap. Allen, cap. 1".
Saw, No. 6 Nutter & Barnes (2).
Saw and column facer, Q. M. & S. No. 4-B universal, 31" blade.
Shear, 8' Ohl, No. 20 ga.
Slotter, 14" Niles.
Tire press, hyd., 60-ton Defiance.
Tooth rounding machine, S. & S.

Send for complete catalog and price list.

USED AND REBUILT MACHINERY

FOR SALE BY

Syracuse Supply Company, 314 W. Fayette St., Syracuse, N. Y.

Guaranteed NEW MACHINES in original crates at prices below list:
 Pipe machine, No. 70 Forbes.
 Shaper, 20" Whip, back geared.

Exceptional values in USED TOOLS:

Band saw, 36" Fox, tilting table.
 Bolt threader, Acme 2-spindle, with one head, 8" capacity.
 Drill, Barr 4-spindle, 8" overhang.
 Grinder, Blount 1 1/2 x 14 wet tool, m. d.
 Knife grinder, 30".
 Lathe, 8x60 Fitchburg lo-swing.
 Lathe, 26" x 10" Cooper Bros., \$125.
 Miller, No. 5 Becker vertical.
 Millers, Wisconsin hand, (3).
 Radial, 5' Pond.

Radial, 5' Dresses, single pulley drive, gear box, \$475.00.
 Rip saw, No. 2 1/2 Powers, self feed, power.
 Screw machine, No. 2 1/2 Garvin.
 Thread miller, No. 12 Lees Bradner.
 Tilted turret, No. 6 Wood.
 Turret lathes, No. 4 Foster, (2).
 Turret lathe, No. 3 Cincinnati Acme.
 Turret lathe, 2 1/2 x 26 Pratt & Whitney.
 Turret lathe, 21" Gisholt.
 Turret lathe, 24" Steidle.

FOR SALE BY

Randle Machinery Co.,

1733 Powers St., Cincinnati, Ohio

Air compressor, 4 1/2 x 5 Worthington, f. v. \$100.
 Air compressor, 9x5 and 12x10 I-R, type ER-1.
 Air compressor, type XRE-3 I-R, 807 cubic ft.
 Bending rolls, 62" x 3/16" cap. Badger.
 Bending rolls, 7 1/2" H. & J.
 Bending rolls, No. 9 Bertsch, m. d.
 Bending rolls, 10" x 1/4" Niles.
 Bending rolls, 12" x 1/4" H. & J.
 Bending rolls, 16" x 1/4" Niles.
 Bolt cutter, 1" Acme, 2-spindle.
 Bolt cutter, 1 1/2" Acme & Landis.
 Bolt cutter, 4" Acme, m. d.
 Boring mill, 24" Bullard New Era.
 Boring mill, 42" King & Bullard.
 Boring mill, 52" Niles-Bement-P.
 Boring mill, 60" & 72" Bullard.
 Boring mill, 66" Niles.
 Boring mill, 96" Bickford.
 Brake, 4" x 10 ga. Robinson.
 Brake, 5" x 16 ga. Robinson.
 Brake, 5" x 10 ga. Robinson, m. d.
 Bending brake, 10" x 10 ga. D. & K.
 Bending brake, 10" x 16 ga. D. & K. b.d.
 Drill, 3" Morris.
 Drill, 4 1/2" Morris, m. d.
 Drill, 6" American, triple geared.
 Gear cutter, No. 15-H D. & H.
 Gear cutter, 36" Whiton.
 Gear hobber, Nos. 1 & 3 Farwell.
 Hack saw, 6x6, Racine or Peerless.
 Hammer, 50 lb. Little Giant.
 Hammer, 60 lb. Bradley-Heide.
 Keyseater, Nos. 1 & 2 Davis.
 Keyseater, Nos. 2 & 3 M. & M.
 Keyseater, Nos. 0 & 3 1/2 Baker.
 Lathe, 14" x 6" Rockford, q. c.
 Lathe, 21" x 10" LeBlond, q. c.
 Lathe, 24" x 12" American q. c.
 Lathe, 26" x 12" Wickes semi-q. c.

Lathe, 22" x 19" American s. p. d.
 Lathe, 24" x 16" L. & S. q. c.
 Lathe, 24" x 12" Draper l. c.
 Lathe, 27" x 14" L. & S. q. c.
 Lathe, 30" x 18" LeBlond.
 Lathe, 48" x 20" Pond.
 Lathe, 54" x 27" Pond.
 Miller, No. 2 Cincinnati universal.
 Miller, No. 2 Cleveland plain.
 Miller, No. 3 Cincinnati plain.
 Miller, No. 1-B B. & S. plain.
 Miller, No. 1-B Milwaukee, plain.
 Miller, No. 4 Cincinnati universal.
 Press, No. 8-A Bliss.
 Press, No. 21 Bliss.
 Press, No. 6 Niagara.
 Press, Emco.
 Planer, 24x24x 8' American, 2 heads.
 Planer, 48x48x14' Gray, 4 heads.
 Planer, 48x48x16" Cincinnati.
 Planer, 60x60x15" Pond.
 Planer, 36x36x10" Powell, 2 heads.
 Planer, 72x72x20" Ridgeway, 4 hds.
 Pipe machine, 2" Jarecki.
 Pipe machine, No. 5 1/2 Merrill.
 Pipe machine, 6" Bignal & Keeler.
 Pipe machine, 12" Saunders.
 Shaper, 14" & 18" Steptoe, plain.
 Shaper, 16" Cincinnati b. g.
 Shaper, 24" Steptoe, b. g.
 Shaper, 24" Queen City b. g.
 Squaring shear, 96" x 18 ga. Niagara.
 Squaring shear, 6" x 10 ga. Bertsch.
 Squaring shear, 8" x 12 ga. Robinson.
 Squaring shear, 52" x 16 ga. Pexto.
 Squaring shear, 8" x 16 ga. Bersch m.d.
 Shear, U-83 L. & A. universal.
 Turret lathe, No. 2 Warner & S.
 Turret lathe, No. 3-A W. & S.
 Wheel presses, 100, 150, 200, 250 & 300 tons; also various other sizes and types.

Send in your inquiry

USED AND REBUILT MACHINERY

FOR SALE BY

Asher Machinery Co.,

217 Centre St., New York, N. Y.

Automatic, No. 0 Brown & Sharpe, serial 1500.....	\$ 650.
Automatic, No. 00 Brown & Sharpe, serial 3253.....	550.
Automatic, No. 2 Brown & Sharpe, serial 1500.....	700.
Grinder, No. 2 Brown & Sharpe universal, fully equipped.....	650.
Lathe, Hardinge precision, quick change gear, taper.....	900.
Lathe, 34x12, Lodge & Shipley triple b. g., latest type.....	1250.
Press, No. 6 Adriance, o. b. i., weight 5500 lbs.....	700.
Press, No. 21 Bliss, 3" stroke, latest type, new clutch.....	490.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road,

N. S. Pittsburgh, Pa.

Automatic, 2" Cleveland, model B.	Lathe, 12"x10' Davis tool rm., q.c.g.
Automatics, 3" Cleveland s. s., (2).	Lathe, 14"—28" Fay & Scott gap.
Automatic, 3" Gridley, cone drive.	Lathe, 18"x10' W.-B., g. h., s. p. d.
Automatic, 3" cone, m.d., latest type.	Lathe, 19"x12' Sidney q. c. g., t. a.
Automatics, Nos. 52 & 53 Acme	Lathe, 16"x8' Sidney q. c. g., t. a.
Bolt cutter, 3" Acme, class "A," 2-sp.	Lathe, 24"x12' Schumacher-B. q.c.g.
Bolt cutter, 1 1/2" Acme, double head.	Lathe, 27"x18' Reed, bargain.
Bolt cutter, 2 1/2" Acme, single head.	Lathe, 30"x12' Boye & Enmes, q.c.g.
Boring mill, D. & H., 3 1/2" bar.	Lathe, 18" Libby turret, s. p. d.
Boring mill, Niles horiz., 4 1/2" bar.	Lathe, 21" Gisholt turret, (2).
Boring mill, 42" Bullard, 2 heads.	Miller, No. 1 Knight, 6"x18".
Boring mills, 51" Bullard, 2 hds (2).	Miller, No. 2A Milwaukee plain.
Bulldozer, No. 4 Williams-W., b. d.	Miller, No. 2 Ohio plain.
Bulldozer, No. 27 Williams-W., m.d.	Miller, No. 3 Cincinnati plain, m. d.
Bulldozer, No. 29W Williams &	Miller, No. 4 Hendey plain, s. p. d.
White, motor drive.	Miller, No. 2 Hendey universal.
Buffers, 10 h. p., 220-3-60-\$600.	Miller, No. 5 B Becker vertical.
Broach, No. 3 LaPointe.	Miller, No. 5 Becker vertical.
Centering mche., Cadillac dbl. end.	Pipe mche., E. C. & B., 2 1/2" to 8".
Cutting-off machine, 6" Hurlburt-R.	Pipe machine, Merrill, 2 1/2" to 12".
Drills, 20", 23", 25", sliding head,	Press, No. 87 Niagara screw.
back geared.	Press, No. 18 Bliss o. b. i., flywheel.
Drills, 24" Barnes camel back, t. a.	Press, No. 3 Adriance o.b.i., 3 1/2" str.
Drill, 3' Mueller, s. p. d., gear box.	Press, No. 8 Standard, o. b. i.
Drills, 4' Fosdick, m. d. 440 volts,	Press, No. 5 Toledo, o. b. i.
3 phase, 60 cycle, constant speed.	Press, No. 92 C Toledo, d. c.
Drill, 3-spindle Taylor & Fenn, p. f.	Press, Ferracute DD2, o. b. i., cam.
Drill, P. & W. multiple, 12-1" spdls.	Presses, 3P Ferracute (3).
Drill, D-2 Colburn heavy duty, (2).	Presses, Nos. 20 & 21 Bliss, new.
Drill, No. 25 Foote-Burt hvy. duty.	Press, No. 75 Consolidated, flywheel.
Drill, No. 25-36" Foote-B. hvy. duty.	Planer, 24"x24"x8' Powell, 1 head.
Gear cutter, No. 1 Bilton.	Planer, 30"x30"x8' Powell, 1 head.
Gear cutter, 40"x9" G. & E., s. p. d.	Planer, 33"x33"x12' Cincinnati, 2 hds.
Gear cutter, No. 13 Brown & Sharpe.	Planer, 48"x38"x12' Gray, 3 hds, m.d.
Grinder, 5 h. p. U. S., 220-3-60.	Planer, 48"x48"x14' Betts, 3 heads.
Grinder, Oliver drill, 1/2" cap., m. d.	Planer, 96"x72"x42" N. B. P., m. d.
Grinder, No. 11 B. & S. plain.	Punch, Wickes, 48" thrt., cap. 1 1/2"x1".
Grinder, 12"x24" Modern plain.	Radial drill, 3' Mueller, g. b.
Grinder, No. 1 Norton univ. cutter.	Radial drill, 3 Taylor & Fenn sens.
Grinder, No. 2 1/2 Bath universal.	Radial drill, 6' Reed-Prentice, m. d.
Grinder, No. 5 Springfield planer	Seamers, Bliss, Leffler & Max Ama.
type.	Separator, Dings magnetic, b. d.
Hammer, No. 1AA HighSpeed, m.d.	Shaper, 14" Ohio single gear crank.
Hammers, No. 2-A, h. d. Hi-Speed,	Shaper, 24" G. & E. hi-duty, b. d.
m. d., 3 ph., 60 cy., 220 v., (6).	Shear, 10"x14 ga. Bertsch, b. d.
Hammer, 60 & 300 lb. Bradley upr.	Tapper, 4" Webster & Perks, 1-spdl.
Keyseater, No. 3 Baker, cap. 3".	

Our warehouse is full of bargains. What have you for sale?

USED AND REBUILT MACHINERY

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

Balancer, Gisholt dynamic.
Boring mill, 42" Bullard New Era.
Drill, No. 30 Natco.
Grinders, No. 10 Brown & Sharpe.
Grinder, 10"x32" Landis, s. p. d.
Grinders, surface, No. 22, Heald.

Hobbers, Nos. 3, 12-B & C.
Lathe, No. 9 LeBlond multi-cut.
Miller, No. 13-B B. & S., production.
Miller, No. 1 Brown & Sharpe.
Miller, 30"x10" Ingersoll, 4 heads.
Radials, 3' Morris, Cincinnati Bick.

Partial list; send us your inquiries.

FOR SALE BY

The O'Brien Machinery Co.,

113 N. Third St., Philadelphia, Pa.

Drill, 6' American univ. radial.
Drill, 4' Fosdick plain radial, single pulley drive.
Drill, 32" Aurora, motor driven.
Drill, 30" Snyder sliding head.
Gear cutter, 36" Becker-B. auto.
Gear cutter, No. 24 Whiton, belt dr.
Grinders, 3 h. p., d. c., dbl. end, (5).
Grinder, 12"x36" Pratt & W. surface.
Grinder, 12"x36" Cincinnati univ.
Grinder, 14"x36" Norton plain, belt.
Grinder, No. 2 Norton universal.
Hammer, 2000 lbs. Chambersburg, double frame, steam forging.
Hammer, 1100 lb. N. B. F., sgl. fr.
Hammer, 600 lb. Bement sgl. frame.
Hammer, 100 lb. Beautydy belt.
Lathe, 30"x30" Harrington.
Lathe, 28"x36" L. & S., b. d., q. c. g.
Lathe, 26"x30" Pond, with motor.
Miller, Newton duplex, planer type, table 21"x12".
Miller, No. 4 Brown & Sharpe plain.

Miller, No. 4 LeBlond h. d., plain.
Milling mch., No. 3 Garvin duplex.
Pipe machine, 2" Landis, belt.
Pipe machines, Oster portable, gas drive, all sizes.
Pipe machines, 2", 4", 6", 8" & 12".
Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock.
Planer, 36"x36"x24" Bement, 4 hds.
Planer, 36"x36"x12" Cincinnati, 2 hds.
Press, No. 73 Bliss trimming press.
Press, No. 37 Niagara, 1100 lb. fly-wheel, solid back.
Punch, No. 14 H. & J. 30" thrt, 4x4.
Punch, 36" E. F. Cleveland 1 1/2 xl.
Punch, Cady quick acting, cap. 4"x4".
Rolls, 14" bending, belt, drop end, rolls 9 1/2" and 8 1/2".
Saw, 16" Higeley cold, cap. 4".
Saw, 30" Espen-Lucas, cap. 8".
Shaper, 18" Cincinnati, one traveling head, 2 tables.

FOR SALE BY

Brown Machinery Co.,

2323 N. 9th St., St. Louis, Mo.

Blowers, Nos. 3, 7 and 9 Sturtevant
Broach, No. 1 LaPointe.
Buffer, Hisey 3 hp., 3-ph., 220 v.
Drills, Barnes 20" with tappg. attmt.
21" C-O & Champion; 22" Barnes;
24" Cincinnati; 25" American; 24" & 32" Mechanics.
Drill, multiple, No. 66-D Moline "Hole Hog".
Gear hobber, G. & E. No. 1716.
Grinders, emery, St. Louis & W.; large stock new at 50¢ disc.
Grinders, disc, No. 6 Besly and 14 Gardner; No. 202 Badger.
Grinders, drill, W. & M.; American.
Grinders, plain, 10x36" Norton; 8x36" B. & S.; 12x36" Modern.
Grinders, universal, Nos. 3 Ohio and 12 B. & S.
Hammer, helve, 40 lb. Bradley.
Lathes, turret, 16" Gisholt, Omar, Foster, J. & L.

Lathes, 16" Monarch; 18" Monarch; Lodge & Shipley; 26" Putnam; 30" American.
Lathes, No. 5A Potter & Johnston.
Millers, No. 4 Hendey; No. 04 LeBlond.
Planer, 42"x42"x10" Pond.
Press, arbor, No. 3 A Geier.
Presses, o. b. i., No. 1 L. & J.
Presses, hydraulic, 36x72" Elmes.
Press, hydraulic, Lourie 200 ton.
Profilers, Putnam; Reed-Prentice.
Punch & shear, No. 52 Beloit.
Riveter, 4" Adt; Grant 4-V-3, m. d.
Shaper, 14" Barker 7" Rhodes; 12" Whipp.
Shears, rotary splitting, No. 134 Marshalltown 4" thrt.; 4" cap.; No. 13 Pettingell.
Shear, sq., 52" Pexto, 10 ga.; power.
Welders, spot, Agnew 4" capacity.

And many others. Write for list 130.

USED AND REBUILT MACHINERY

FOR SALE BY

E. L. Klauber Machinery Co., 320 South Third St., St. Louis, Mo.

Band saws, 14" motor drive.
Bench drills, motor drive, 110 volt.
Coil winding machine.
Cut-off machine, Hurlbut-Rogers.
Double seamers, Bliss Nos. 1 & 1½.
Drill presses, 10" to 34".
Drop press, 200 lbs. power lift.
Gear hobber No. 000, S. & S.
Gear miller, automatic, 4" cap.
Grinders, Greenfield cutter & tool.
Grinder, No. 2 Garvin hole.
Grinder, belt and disc, Duplex-B.
Grinders, disc, motor drive.
Grinders, electric bench, ½ h. p. 110 volt a. c.
Lathe, bench, Stark, with collets.
Lathe, Dalton type B-4.

Lathes, 14x6 Davis tool room.
Lathe, 15x6 South Bend.
Miller, No. 4 Cincinnati pl. hi-power
Milling machine, Knight No. 2.
Pinion and wheel cutter, Stark.
Planer, 30"x30"x8" American.
Polishers, New Britain drop head.
Polisher, St. L. No. 7, roller bearing.
Presses, 30 ton Southwark, hydr.
Punch and shear, No. 18 Williams & White.
Screw mches, ½" Cleveland auto. (2).
Screw machine, No. 56 National
Acme 4-spindle.
Tapping machine, No. 6 St. Louis.
Tapping mach. 8" Montgomery h. s.
Tapping machine, No. 2 St. Louis.

FOR SALE BY

Norton-Broadway Mch. Co., Sixth & Baymiller Sts., Cincinnati, O.

LATHES.

36"x20' Bradford, triple geared.
32"x19' Wickes, double b. g.
30"x16' American, q. c.
30"x14' Prentice q. c.
27"x14' Pond, q. c.

13-26"x14' Putnams, semi-quick.
24"x14' Lodge & Shipley, q. c.
28"x10' Boye & Emmes, q. c.
19"x10' LeBlond q. c.
20"x10' Bradford, loose change.

MILLING MACHINES.

No. 2½ & 3 LeBlond plain.
26" Oesterlein universal.
No. 3H LeBlond heavy duty. plain.
No. 6 Becker vertical.
No. 12 Brown & Sharpe plain.
No. 13 Brown & Sharpe, plain.

No. 4B Brown & Sharpe heavy duty.
No. 4 Cincinnati universal.
No. 4 Cincinnati vertical sgl. pul.
No. 3 Brown & Sharpe, vertical.
No. 12 Pratt & Whitney, Lincoln type
Owen two-spindle.

BORING MILLS.

24" Bullard New Era type, serial
11469.
36" Niles, 2 heads.
34" Bullard, 1 head.

42" Gisholt, 2 heads.
50" Niles, 2 heads.
6" Gray horizontal.

PLANERS.

24"x24"x6' Ohio.
24"x24"x 8' Pond, 2 heads.
24"x24"x 8' Putnam, 1 head.
32"x32"x 8' Gray, 2 heads.
30"x30"x 16' Gray, 2 heads.
32"x32"x16' Whitcomb, 2 heads.

48"x16' Detrick & Harvey, open side
48"x10' Belmer, 4 heads.
48"x16' Cincinnati, 4 heads.
24"x 8' Smith & Silk, 1 head.
Whitcomb crank planer.

DRILLS AND RADIALS

4-spindle Kokomo, 12" overhang.
3-spindle Henry & Wright, 7".
4-spindle Reed sensitive.
3-spindle Reed sensitive.
6-spindle Reed sensitive.

3' American single pulley, gear box.
3' Morris, single pulley, gear box.
3½' Mueller, single pulley.
5' American, semi-univ., sgl. pulley.
5' universal, old style.

MISCELLANEOUS.

Air compressor, 800' Ingersoll, 2 stage
Bending brakes.
Bolt cutter, 2-sp. Acme 1½".
Drill 28" Aurora, tapping att.
Gear hobber, Cincinnati.
Grinders, Nos. 4 & 120 Gardner disc.
Hack saw, 10" Massachusetts.
Hammer, Bradley helve.
Hammers, Bradley strap.

Presses, Toledo, Long & Allstater
& Losbough & Jordan inclinable.
Press, 50 ton Lucas forcing.
Press, 150 ton Caldwell wheel.
Punch and shear No. 3 H. & J. d. e.
Shears, 6' 8", 10' power.
Threading mche., Auto. Mch. Co.
Turret, No. 3-A Warner & Swasey,
serial 100,756.

More than 300 machines tools in stock.

USED AND REBUILT MACHINERY

FOR SALE BY

Badger-Packard Mch. Co., 133-9 W. Water St., Milwaukee, Wis.

Boring bar, 4" Barrett.....	\$150.	Planer, 38x38x12' Niles, 2 hds. on rail, 1 side head.....	\$1,200.
Boring bar, 3 1/2" horizontal.....	600.	Press, 50-ton Lorie hydraulic.....	300.
Driller, No. 1-S Garvin.....	250.	Press, 50-ton Lorie hydraulic.....	275.
Gear cutter, 36" B. & S.....	400.	Saw, 20" Q. M. S., cold.....	150.
Gear cutter, 36" G. & E.....	350.	Screw mch., 2" Cleveland.....	200.
Grinder, 10"x50" Norton cyl.	650.	Screw machine, No. 33 New Britain.....	600.
Hammer, 50 lb. Bradley upr.....	225.	Shaper, 12" Rockford plain....	400.
Hobber, No. 2 Adams.....	600.	Shaper, 14" G. & E.....	325.
Lathes, brass, 17" B. & O., new (2) each.....	460.	Shaper, 24" L. & D.	200.
Miller, No. 5 Becker.....	650.		
Planer, 26x26x6' Pond, 1 head....	300.		

FOR SALE BY

Miles Machinery Co.,

Saginaw, W. S., Mich.

Automatics, Nos. 5A & 6A P. & J.		Lathe, 58"x20" New Haven, q. c. g.	
Brake, 8"x3/16" Dreis & Krump.		Lathes, turret 21" and 24" Gisholt.	
Crane, 5 ton Sprague a. c. motors.		Lathe, turret, 36" Bullard vertical.	
Drill, No. 2 mfg. Colburn.		Mills, boring, 48" and 72" Bullard.	
Drills, heavy, Nos. 216 & 314 Baker.		Mills, boring, 84" and 120" Niles.	
Grinder, 14"x72" Norton.		Millers, 18" Cincinnati automatic.	
Grinder, 8" and 12" Heald rotary.		Millers, Nos. 4 and 6 Becker vert.	
Grinder, surface, No. 2 B. & S.		Planer, 72"x72"x18' Pond, 4 heads.	
Hammers, 40, 100 & 150 lb. Bradley.		Planer, 32"x32"x12' Niles.	
Keyseaters, Nos. 2 & 4 M. & M.		Press, No. 164 Toledo toggle draw.	
Lathe, 12"x8" Hendey.		Shaper, 20" American.	
Lathe, 18"x8" Monarch.		Threaders, 2", 2 1/2" and 3" Acme.	
Lathe, 20"x8" LeBlond.		Upsetters, 1", 1 1/2" and 2" Ajax.	

FOR SALE BY

Bennett Machinery Co.,

30 Church St., New York City

Boring mill, 72" Betts, p. r. t.		Lathe, gap, 17/32"x8' Putnam.	
Boring mill, 66" Niles B. P.		Lathe, turret, 14"x18", P. & W.	
Boring mill, 42" Bullard, 2 heads.		Milling mchs., 3B & 1B Milwaukee.	
Boring machine, 3" bar, Lucas.		Milling machine, 1A Milwaukee.	
Drill, 24" Weigel, belt drive.		Miller, No. 3 Becker vertical.	
Drill, Henry & Wright, 1-spindle.		Miller, No. 14-A Garvin plain.	
Drilling and milling machines Nos. 1 and 2 Knight.		Miller, duplex, No. 14 Cochrane.	
Grinder, 14"x36" P & W. vert. surf.		Motor, 20 h. p. variable speed, d. c.	
Grinder, No. 2 Landis, univ.		Pipe machine, 8" E. C. & B., belt.	
Grinder, No. 1 W. & M. univ. t. & c.		Pipe machine, 8" Jarecki, motor.	
Grinder, No. 60 Heald.		Pipe mch., 8" Saunders, belt dr.	
Keyseater, No. 1 Davis, 1"-1 1/2".		Pipe machine, 6" Saunders 2 1/2"-6".	
Lathe, 45"x34" N. B. P., geared hd.		Pipe machine, 6" Oster belt.	
Lathe, 26/48"x14" McCabe, dbl. sp.		Pipe machine, 4" E. C. & B., belt.	
Lathe, 26"x12" Greaves-Klusman.		Pipe machine, 3" Jarecki No. 7B.	
Lathe, 24/33"x14" Pond, belt.		Pump, 5 1/2"x8x7 Worthington, new.	
Lathe, 24"x24" Schumacher-B., cone.		Punch, 24" L. & A. No. 4 a. e.	
Lathe, 18"x10" Monarch, q. c. g.		Radial drill, 4" Dreses, a. p. d.	
Lathe, 20"x8" Whitcomb-B., q. c. g.		Radial drill 3" American, a. p. d.	
Lathe, 18"x8" Whitcomb-B., q. c. g.		Saw, cold 22" blade Gleim, 6" cap.	
Lathe, 16"-18"x8" L. & S., q. c. g.		Screw mch., Gridley auto., 1 1/2", 4-sp.	
Lathe, 18"x8" Porter.		Screw mch., tur., No. 6 W. & S., g. h.	
Lathe, 14"x8" Porter.		Shaper, 24" Hollingsworth cone.	
Lathe, 12"x5" Davis, q. c. g. taper.		Shaper, 24" Hendey friction.	
Lathe, 12"x5" Hendey, taper, draw bar.		Shaper, 20" Gould & Eberhardt.	
Lathe, gap, 28/48"x12" Harrington		Shaper, 16" Gould & Eberhardt.	
		Shaper, 16" Stockbridge, belt.	
		Shear, 20" Niagara power.	

USED AND REBUILT MACHINERY

FOR SALE BY

Nelson Machinery Co.,

123 N. Pearl St., Green Bay, Wis.

Boring mill, 72" Bickford vertical hollow, with 2 swivel heads.
Drill, 3' Wisconsin high speed sensitive radial, tapping attachment, swinging table, finished T slot base, new.
Drill press, 5' Drees full universal radial, with m. d.
Pipe machine, No. 14 Jarecki 2½ to 8", q. c., adjustable dies.
Planer, 36x36x12 Bickett heavy duty, 2 heads on rail.
Planer, 26" Lynd Farquhar open side, new.
Planer, 36x36x12 Woodward & Powell 2 heads on rail.
Press, Taylor & F. spring foot, 3½" travel of ram, cap. 1"x.055 thick, new.
Shapers, 16 and 20" Cincinnati crank.
Turret, 1½"x16" Pratt & Whitney.

FOR SALE BY

A. M. Stoehr Machinery Co.,

106 S. Jefferson St., Chicago, Ill.

Bolt cutter, 3-spd. Acme, 1" cap.
Boring mill, Beaman & Smith horizontal, 5" bar; 48" Colburn, 2 hds.
Furnace, case hardening, Eclipse gas.
Hammers, 50 lb. Little Giant; 300 lb. Beaudry; 1500 lb. W. & W., board drop.
Miller, 40" Ohio, auto. rotary.
Presses, R. & K. dbl. ck., 36" bet. column, roller feed, 2½" stroke; No. 1 Bliss, toggle, belt drive.
Planers, 70x60x16" P. & W., 4 heads.

Punch and shears, No. 5 Southwark 48 throat, arct. jaw; E.F. Cleveland 40" t. and 10 others.
Riveters, 3-A, 4-A & 5-A, high spd.; two Allen Pinch Bug; Rock River, 42" stake, ½" rivets.
Rolls, 14' New Doty, 7/16".
Screw machines, National Acme Nos. 52, 53, 55, 56 and 515.
Shears, Kling splitting, ½" cap.
Wire straighteners, up to ½" cap.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Brake, Robinson 8' 10 gauge power bending brake, new cond., never used.
Drill, Henry & Wright 4-spindle, class K, 12" overhang, ball bearing, good as new.
Drill, W. F. & J. Barnes 22½" upright, back gear and power feed.
Drill, Snyder 28" sliding head, pump and piping, perfect mechanical cond.
Forging machine, 1½" Acme iron frame.
Grinder, 10"x72" Landis self contained motor drive excellent condition.
Grinder, Baxter D. Whitney No. 23 cylinder grinder, complete, fine cond.
Grinder, m. d. disc, No. 41 Besly with 18" ring wheels and comp. table a. c. mtr.
Grinder, surface, No. 3 Diamond with magnetic chuck.
Hammer, 200 lb. Beaudry, fine condition, used very little.
Hammer, 500 lb. Bradley upright helve, guaranteed.
Miller, Burr No. 5 keyseat milling machine 60" table feed, routing attachment 90% new.
Milling machine, Garvin No. 2 duplex.
Milling machine, Ohio, No. 35 universal, complete equipment.
Milling machine, vertical, No. 3 Ingersoll single pulley drive.
Milling machine vertical attachment for No. 3 Kempsmith miller.
Polishing lathe, U. S. Elec 3 h. p. 220 volt d. c. polishing lathe.
Polishing lathes, Frankfort double end, b. b., 1½" diam spindle (6).
Polishing machine, Blevney vertical belt polishing machine.
Saw, Ryerson No. 3 friction saw, a. c. motor extra saws, pwr. fd., fine cond.
Thread miller, Coulter hob thread miller, very good condition.
Turret lathe, Warner & Swasey No. 4, g. h., f. universal with equipment bar and chucking.
Turret lathe, Warner & Swasey No. 6 g. f. h. power feed, (2).
Turret lathe, Gisholt 25" complete with tools.
Shear, Beloit No. 43 throatless splitting shear, ½" capacity.

USED AND REBUILT MACHINERY

FOR SALE BY

Lee Machinery Company, Inc.

6318 E. Jefferson Ave., - - - Detroit, Michigan

Arbor press, No. 6 Eames.
Grinder, 6" x 32" Norton.
Grinder, No. 70 Heald internal.
Grinder, No. 2 Brown & Sharpe universal.
Mill, No. 1½ Brown & Sharpe plain.
Punch press, No. 3 Rockford.

FOR SALE BY

Rosenfeld Machinery Co., - 942-944 W. Lake St., Chicago, Ill.

Broaching machine, No. 2 LaPointe (New London), with broaches.
Grinder, No. 10 Besly disc.
Milling machine, No. 2 Cincinnati universal, complete.
Milling machine, 1B Milwaukee, single pulley drive with vise.
Miller, Becker vertical, Model CS, rotary table.
Motors, ½ h. p. to 100 h. p., a. c. and d. c.
Punch press, 1-4P style, solid back.
Vises, 100 new Rock Island all sizes.

FOR SALE BY

Foster Machinery Company, 2613 E. 73rd St., Cleveland, Ohio

12"x14 ga. Loy & Nawrath.	SHEARS. Canton alligator, cap. 1½' sq.
Brake, 6', 10 ga.	MISCELLANEOUS. Riveters, Nos. 2-A and 3-A High Speed, heavy duty.
Drill, 18-spindle No. 4 Bausch.	Welder, butt, 2" round.
Pipe machine 2" Jarecki.	
Upsetter, 2½" Acme (steel).	

FOR SALE BY

Carlson Machinery Co., Inc., - - - Davenport, Iowa

Boring machine, No. 2 Roc'kd hor.	Lathe, 14x6 Lodge & Shipley.
Boring mill, 36" Bullard 2 heads.	Lathe, 16x10 Lodge & Shipley.
Drill, 4" Sipp h. s., b. b.	Lathe, 16x8 Hendey, yoke head.
Grinder, 10x20 Landis universal.	Miller, No. 1 Cleveland pl., s. p. d.
Grinder, No. 10 Besly disc, 2 grd. tables, ring wheel chuck.	Planer, 16"x4' Hendey.
Lathe, 8"x38" Rivet bench.	Press, No. 2 Springfield straightening
	Riveter, ½" Grant.

FOR SALE BY

The Reeve-Fritts Co., 558-560 W. Washington Blvd., Chicago, Ill.

Boring mill, 2½" Lucas horizontal.	Lathe, 12"x5' Pratt & Whitney tool makers.
Die filer, No. 3 Barry.	Miller, No. 2 Rockford, plain.
Drill, 4' Ryerson radial.	Miller, No. 2 Ford-Smith universal.
Drill, 14" Leland h. s., b. b.	Miller, No. 3 Chicago hd. & power.
Drill, 16" Sipp b. b.	Planer, No. 3½ Fox, hand or power.
Drill, 5 spindle Fox, ½" cap.	Planer, 24"x24"x6' Rockford.
Gear cutter, No. 98 G. & E. spur & b.	Planer, 24"x24"x6' American.
Grinder, 8"x20" Fitchburg plain.	Press, No. 3-P Am. Can solid bk.
Grinder, No. 1 LaSalle surface.	Press, No. 0 LaSalle bench.
Lathe, 14"x6' Bradford q. c. g.	

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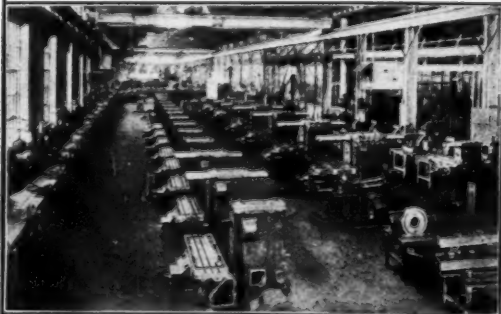
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1—(USED) American Blower Exhaust Fan, type H. 45"; outlet, 16"x16"; inlet 19" round	10.
1—(USED) Wilmarth and Morman (New Yankee) Twist Drill Grinder, motor drive, direct current, 230 volt, speed 1150 and 1200 r.p.m. Largest holder $\frac{1}{2}$ " to $3\frac{1}{2}$ " cap., small holder No. 52 to $\frac{5}{8}$ " drills; with water attach.	175.
1—(USED) No. 26 Bealy Dbl. Disc Grinder with two disc and c. s.	200.
1—(USED) No. 5 Oliver Motor Driven Twist Drill Grinder, capacity $\frac{1}{4}$ " to $2\frac{3}{4}$ ", 1 h. p. motor, 220 volt, 60 cycle, single phase, 1750 r. p. m.	175.
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1—(USED) No. 210 Heald Ring Surface Grinder	50.
1—(NEW) No. 23-B Valley City Double End Disc Grinder with right hand lever feed to table, left hand plain table, two 24" steel discs, hand press and countershaft.	375.
1—(USED) No. 5 Williams-White Drop Hammer; weight of ram 600 lb.; distance between guides $16\frac{1}{4}$ "; length of guides 4' 2". With sandage lifter, single pulley dr. $24"x6\frac{1}{2}"$	200.
1—(NEW) No. 1 Davis Keyseater arranged for motor drive	455.
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1—(USED) 19"x8' LeBlond Heavy Duty Automobile Lathe with 3-step cone double friction back gear, double friction countershaft. Serial NE-1922	800.
3—(USED) 13"x6' Sebastian Standard Loose Change Gear Engine Lathes, 4-step cone, single back gear compound rest and countershaft, each	150.
1—(USED) 13"x6' Willard Standard Loose Change Gear Engine Lathe, 3-step cone double friction back gear, compound rest, single friction countershaft	150.
1—(USED) 14"x6' Flather Standard Loose Change Gear Engine Lathe, 4-step cone single back gear, dbl. friction c. s.	150.
1—(USED) 14"x6' Carroll-Jamieson Engine Lathe, 4-step cone single back gear, has four change box for geared feed, compound rest, double friction countershaft	150.
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1—(USED) No. 10 Pratt & Whitney Hand Milling Mche. with c. s.	150.
1—(USED) No. 0 Brown and Sharpe Plain Miller, belt feed, oil pot and double friction c. s., without back gears.....	275.
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1—(NEW) No. 9 Blackmer Hand Rotary Pump, capacity 12 gallons per minute.....	15.
2—(NEW) No. 30 Long and Allstatter Open Back Inclined Power Presses, belt drive, weight of flywheel 350 lbs.; total weight of machine 2200 lbs.; stroke 2½", each...	400.
1—(NEW) No. 22 Rockford Flywheel Horning Press with adjustable table, stroke 1½"; weight of machine 2670 lbs....	423.
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1—(NEW) No. 4 Rockford Open Back Inclined Flywheel Press, stroke 2½"; weight 4000 lbs.	750.
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1—(USED) 32" Band Saw (Wood).....	100.
1—(USED) Napier Metal Band Saw, vise opens 6"; complete with tight and loose pulleys for belt drive	100.
1—(USED) No. 15 Lea-Simplex Type BD, Cold Metal Saw for belt dr., capacity round stock 5"; square stock 4½"; I-beams 9"; tight and loose pulley. Mche. like new..	500.
1—(USED) No. 1 National Acme Screw Slotter.....	125.
1—(NEW) No. 1 Frew Automatic Tapping Machine, belt drive with countershaft; takes ½" U. S. tap,	345.
1—(USED) 1"x15" Pratt and Whitney Turret Lathe with power feed to turret slide, 3-step cone, without back gears, independent stop to each face of turret, chuck capacity 1", has wire feed att., pan bed, triple countershaft ...	500.
1—(USED) 2½"x26" Pratt and Whitney All Geared Turret Lathe with cross feeding turn table. Machine will swing 20", takes 2½" in spindle.....	300.
1—(USED) No. 2 Warner and Swasey Hollow Hex. Turret Lathe with automatic chuck, roller wire feed, power feed to turret slide, friction head, 3-step cone, pan bed, and pump, triple friction countershaft. Spindle cap. 2"...	400.
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6¹ American Tr. Grd. Pl. Radial, g.b.d.
5¹ American Tool Wks. t. g. Pl., g. b. d.
4¹ American Triple Geared Plain Radial, g. b. d. (3).
4¹ Dreeses H. D. Plain, g. b. d.
3¹ Dreeses H. D. Plain, g. b. d.
3¹ Morris Plain, gear box drive.
4¹ Carlton b. b. Sensitive, tapping attach.
4¹ Hammond b. b. Sens. Radial.
3¹ American Sens. b. b. Radial, tap. att.
2¹/₂¹ Carlton b. b. Sens. Radial, t. a.
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34⁸ & 28⁸ W. F. & J. Barnes Up., latest.
24⁸ & 28⁸ Aurora Upright, t. a.
26⁸ W. F. & J. Barnes Up., t. a., late.
28⁸ Reed-Prentice Upright.
36⁸ Aurora Upright Drill, tapping att.
36⁸ Cincinnati-Bickford Up., late.
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26⁸ Barnes ALL GEARED.
25⁸ Snyder Upright Drill.

24⁸ Cincinnati Bickford Upright.
24⁸ Milwaukee Upright Drill.
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6-spindle 21⁸ Hoefler Gang.
3-spindle 22⁸ Hoefler Gang Drill.
6-spindle Acme Horiz. Auto. Drill.
Allen 1, 2 & 3-spdl. b. b., No. 2 M. T.
No. 220 Baker 2-spindle, H. D.
No. 1¹/₂ Foote-Burt 5-spindle, H. D.
No. 17 Foote-Burt 3-spdl. hvy. duty.
Leland Gifford spl. spdl., b. b., No. 1 M. T.
Avey 2-sp. b. b., No. 2 Morse Taper.
Henry & Wright 2-sp. b. b., No. 2 M. T.
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No. 0 Fox Multiple, 4-spindles.
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16⁸x6¹ Hendey grd. hd., q. c.
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No. 3-26" Cinti. Auto. Spur Gr. Cut.
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Nos. 2 & 1 1/2 LeBlond Universal, c. p.
Nos. 3 & 1 Hendey Universal, c. p.
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No. 3 Cincinnati Hi-Power Plain, s. p.
No. 3 Hvy. Ohio Plain, c. p., p. r. t.
No. 3 Brown & Sharpe Plain, c. pulley.
Nos. 3 & 1 Kempsmith Pl., cone pulley.
No. 3 Hendey Plain, cone pulley.

No. 3 Cincinnati Plain, cone p.
Nos. 2 1/2 & 2 LeBlond Pl., cone pulley.
No. 2 Cincinnati Plain, cone pulley.
No. 2H Brown & Sharpe pl, cone pulley.
No. 1 1/2 B. & S. Plain, cone pulley.
No. 0 1/2 Cincinnati Plain, cone pulley.
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Hendey Duplex Milling Machine.
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No. 3 1/2 Fox Hand & Power Millers.

(Continued on next Page)

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(Continued from Preceding Pages)

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Arbor Presses, Nos. 3 & 3½ Greenerd.
Arbor Press, No. 55 Atlas Pwr., b. d.
Automatics, Nos. 32, 53, 54, & 56, National Acme, 4-spindle.
Automatic, No. 5A Potter & Johnston, late type, 21,000 serial, (3).
Automatic, No. 6A Potter & Johnston, late type, 19,000 serial.
Autos., 2¼", 3¼" Gridley s. s.
Auto., ¾" Gridley 4-spindles.
Bolt Cutters, 1" Acme Class "A".
Bolt Thread. Mche., 1" Landis.
Bolt Thread. Mch., 2½" Landis, l. s.
Bolt Thdr., 1", 1½" Landis dbl.-sp.
Bolt Thdr., 2" Acme dbl.-sp.
Bolt Thread. Mch., 1¼" Acme.
Boring Mill, 51" Bullard vert., 2 hds.
Boring Mill, 42" Bausch vert., 2 hds., power rapid traverse.
Boring mill, 37" Niles Vertical, 2 hds.
Boring Mill, 72" Bick. vert., 2 hd.
Bor. Mill, 30" Cisholt vert., turret hd.
Boring Mill, 3" Barrett Hor., 3" dia. bar
Boring mill, 3" Lambert Hor. s. p.
Boring Mill, No. 3-A Univ. Hor. 3" bar.
Broach. Mch., Nos. 2 & 3B LaPointe.
Broaching Machines, Nos. 2 & 3 J. N. LaPointe Double.
Broach. Mch., Nos. 2 & 3 LaPointe.
Chuck Mch., No. 23 New Britain Auto.
Chuck Mch., No. 22 New Britain auto.
Chuck Mch., No. 24 New Britain auto.
Chuck Mch., No. 33 New Britain auto.
Chuck. Mch., No. 53 N. B. Auto. d. e.
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Hack Saw, 13"x16" Peerless H. S. Pwr.
Hack Saw, 12"x12" Racine H. S. Pwr.
Hack Saw, 6"x6" Peerless H. S. Pwr.
Hammer, 25 lb. Little Giant Trip. b. d.
Hammer, 100 lb. Bliss board drop.
Hammers, 40 & 60 lb. Bradley c. h.

Hammer, 50 lb. Bradley Up., b. d.
Hammer, No. 5-A High Speed Rivet.
Hammer, ¾" Schuster Riveting.
Hammer, No. 4A High Spd. Riveting.
Hammer, No. 3A Hi-Spd. Riveting.
Hammers, No. 1-AA High Spd. Riv.
Hammer, No. 2-A H. S. Riv., h. d.
Hammer, No. 1½B High Spd. Rivet.
Keyseater, No. 0 M. & M., cap. ¾".
Keyseater, No. 1 Baker Bros., cap. 1¼".
Press, No. 14 Peck-Stow & Wilcox
O. B. I. Power, D. A.
Press, No. 5 L. & J. O. B. I., Pwr.
Press, No. 3 L. & J. O. B. I., Pwr., New.
Presses, Nos. 3 & 4 L. & J., o. b. i. Pwr.
Press, No. 65-B Niagara double crank
Power, flywheel.
Press, No. 74 Consolidated Pwr. grd.
Press, DNo. 2 Ferracute O. B. I. cam,
double action.
Press, D. D. No. 2 Ferracute O. B. I.
cam, double action.
Press, No. 54-A Toledo O. B. I., Pwr.
No. 63 Consol. sgl. crank, s. s. Pwr.
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Profilers, No. 12 P. & W. 2-spindle.
Profiler, No. 1 Garvin, 2-spindle.
Punch & Shear, No. 2 L. & A., dbl. end.
Punch & S., No. 3 Hiles & J., dbl. end.
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Shaper, 10" Pratt & Whitney Vertical.
Shear, No. 662 Niagara 62" Power
Gap, Square, 10 gauge capacity.
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bench type.
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Automatic, back geared.
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3261 Spring Grove Ave., Cincinnati, Ohio

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- No. 7 Foster Universal Turret Lathes.
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- 74" Gould & Eberhardt Gear Cutter.
- No. 2 Schuchardt & Schutte Automatic Gear Hobbers.
- 5' Cincinnati Bickford Radial Drill, enclosed head.
- 6' Western Radial Drill, single pulley drive.
- 14"x72" Norton Plain Grinders.
- No. 60 Heald Cylinder Grinders.
- No. 24 Gardner Horiz. Disc Grinder motor drive.
- No. 6 American Can Co. Straight Side Press.
- No. 165 Toledo Toggle Press.
- No. 168 1/4 Toledo Toggle Press.
- No. 8 Whiting Single End Punches.

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- No. 6 Warner & Swasey Turret Lathe.
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- 60" Brown & Sharpe Spur Gear Cutter.
- 12"x6' Hendey Geared Head Lathe, arr. mtr. dr.,
including 220 v., 3 ph., 60 cy. a. c. motor.
- 12" Persons & Arter Rotary Surface Grinder,
with 220 v., 3 ph., 60 cy. a. c. motor drive.
- 22" Pratt & Whitney Vertical Surface Grinder,
72" table, large mag. ch. and 3 new wheels.
- 10"x36" Norton Plain Grinder.
- 10"x50" Norton Plain Grinder.
- 14" Pratt & Whitney Vertical Surface Grinder.
- No 4, 16"x72" Cincinnati Universal Grinder.
- 24" Cincinnati Bickford Upright Drill, friction
back geared, sliding head.
- 4' Hammond Sensitive Radial Drill.
- 6' Cincinnati Bickford Plain Radial.
- No. 2 Baker Keyseater.
- No. 3 Cincinnati Plain High Power Miller.
- No. 4 Cincinnati Plain High Power Miller.
- No. 3-B B. & S. Heavy Plain Miller, s. p. d.
- 2¼" Acme Bolt Cutter.

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Partial list herewith—

ENGINE LATHES

- | | |
|---|---|
| 14"x 6' LeBlond, l. c. g. and chuck. | 15"x8' Hamilton, c. r., q. c. g. |
| 14"x 6' Hamilton. | 16"x 8' Monarch, compound rest, |
| 14"x 6' Porter, compound rest and | standard pattern. |
| taper attachment, l. c. g. | 18"x 8' Boye & Emmes, c. r., q. c. g. |
| 14"x8' Walcott, c. r., q. c. g. | 18"x10' Star, 4-s. c., s. g., with 16" |
| 16"x 8' Bradford, c. r., loose change | 4-jaw ind. chuck. |
| gear. | 18"x10' Walcott, 3 step cone, d. b. g., |
| 16"x9' Rockford, 3 step cone, d. b. g., | semi quick change. |
| c. r. and t. a., semi quick change. | |

TURRET LATHES AND SCREW MACHINES

- | | |
|---|--|
| No. 60 Brown & Sharpe auto. | No. 2 Warner & Swasey, p. h., a. c. |
| No. 9 Brown & Sharpe auto. | and b. f. |
| 12" W. & S., friction head. | No. 4 Warner & S., g. f. h., a. c. and |
| 14" W. & S., friction head, (2). | b. f. |
| 1" Foster, plain head, a. c. and b. f. | No. 55 Nat'l Acme 4-spd. auto. |
| No. 3, 14" Woods tilted turret. | No. 3 Foster g.f.h. turret screw mch., |
| 1" Briggs, p. h. with a. c. and b. f. | with p. f. carriage and turret. |
| 1"x7" Millholland, p. h., a. c. & b. f. | |

DRILLING MACHINES

- | | |
|---------------------------------------|--------------------------------------|
| 20" Barnes Plain Lever Feed. | Gordon single spindle, h. a., b. b. |
| 3' Western Gear Box, single pulley | No. 40 Natco Straight Line Multiple |
| drive with t. a. | Spindle Drill, 8-spindle head with |
| 4' Mueller, gear box, sgl. pulley dr. | two speeds in head. |
| 8' Americans, triple grd., 8-speed | Fox multiple spindle, sliding head, |
| change, gr. box, sgl. pulley drive. | arranged for 12 spindles. |
| 12-spindle Moline, cam fd., two tbl. | No. 44 Colburn, sgl. sp. heavy duty, |
| No. 22 Colburn, sgl. sp., hvy. duty, | 24" cap., with solid sp. and flange |
| 14" cap., with solid spindle and | for receiving multiple drill heads, |
| flange for receiving multiple drill | new, (2). |
| heads, new, (2). | No. 34 Demco high speed bench |
| No. 30 Natco, belt driven. | drill with C spindle, new. |

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MILLING MACHINES

No. 6 Whitney hand, (3).
No. 3 Pratt & Whitney hand miller.
No. 1 Toledo hand millers, (2).
No. 0 Bickett, hand, bench type, (2).
No. 2 Cincinnati vertical, s. p. d.
Briggs Type "A" motor driven with motor.

2-A Brown & Sharpe universal constant speed drive.
Becker 2-spindle, with rotary table.
24"x18"x60" Ingersoll, Farwell vertical milling head.
No. 3 Brown & Sharpe Plain, cone drive, with taper nose spindle.

SHAPERS AND PLANERS

25" Smith & Mills Back Geared Crank.
20" Hendey friction, (2).
22"x22"x 5' Putnam planers, (2).
28"x38"x10' Pond, 2 heads on rail.

28"x30"x6' Cleveland open side one rail head, one side head.
28"x28"x8' Gray Planer, one head on rail.

CENTERING MACHINES

Centering machines, single spindle Cadillac.

GRINDERS

30"x84" Diamond Face Grinder, belt driven.
No. 3 Diamond wet tool grinder with drop apron, new.
No. 4 Diamond wet tool grinders with drop apron, new.
No. 14-48" B. & S. plain, (3).
No. 6-A Bryant internal.
Webster & Perks, h. s., b. b., double spindle polishing lathes, cabinet base (6).

No. 10-18" Besly disc grinder.
No. 3 Brown & Sharpe planer type surface grinder.
Gisholt universal form tool grinder.
Type "DE" Hisey-Wolf internal.
No. 11 Brown & Sharpe pl. grinders.
Plain emery wh'l stand with column.
C3A Grand Rapids duplex drill grinders with wet att., new.
Landis Internal, with countershaft.

MISCELLANEOUS

Arbor press, No. 28 Atlas.
Boring and Turning Mill, 52" Bullard
Vertical 2 swivel heads, motor dr.
Boring Mill, 34" Bullard Rapid Production with side head, belt driven.
Filing Machine, No. 2 Cochrane-Bly.
Gear Cutter, No. 4-48" B. & S.

Hand brake, 5' Dreis & Krump.
Pipe machine, No. 300 Oster, 1/2" to 2".
Pipe machine, 8" Jarecki, No. 88.
Power Press, Max Arms S. S. Plain, 8" stroke, on inclined legs.
Power press, P-4 Ferracute Plain.
Tappers, Garvin No. 2-BG (3).

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Lathes

- 1-66"x21" Putnam.
- 1-86"x16" Lodge & Shipley.
- 1-48"x50" Pond.
- 1-43"x24" Pond.
- 1-42"x50" Putnam Grd. Hd.
- 1-42"x50" American Grd. Hd.
- 1-36"x71" American Grd. Hd.
- 1-27"x14" Reed-Prentice Grd. Hd.
- 5-26"x16" Niles-Bement-Pond.
- 10-26"x16" Bridgeford.
- 5-26"x14" Niles-Bement-Pond.
- 5-26"x12" Bridgeford.
- 13-26"x11" Wickes.
- 40-26"x10" Niles-Bement-Pond.
- 21-26"x10" Canada.
- 15-26"x10" Whitcomb-Blaisdell.
- 44-26"x10" Bridgeford.
- 9-23"x12" LeBlond.
- 1-24"x10" Cisco.
- 5-20"x22"x16" American.
- 1-20"x12" L. & S. Sel. Grd. Hd.
- 30-20-22"x8" American.
- 3-18"x8" L. & S. Sel. Grd. Hd.
- 1-18"x8" Lodge & Shipley.
- 1-18"x8" Hendcy.
- 3-18"x8" Cisco.
- 1-14"x8" Pratt & Whitney.
- 1-16"x10" Sundstrand Mfg.
- 3-16"x8" Sundstrand Mfg.
- 5-14"x8" American Gd. Hd.
- 1-14"x6" Hendcy.
- 2-4"x60" Loswing.
- 5-34" Fitchburg Loswing.

Auto. Screw Machines

- 7-No. 6-A Potter & Johnston.
- 6-No. 8-A Potter & Johnston.
- 1-No. 56 National Acme.
- 1-1"x5" New Britain.

Turret Lathes

- 10-24" Steink; 4-24" Gisholt.
- 3-21" Gisholt.
- 3-20"x8" American.
- 1-No. 7 Foster, Geared Head.
- 1-No. 3-A Warner & Swasey.
- 2-No. 3 Cincinnati-Acme Univ.
- 7-2-spindle Jones & Lamson.
- 1-18" Acme.
- 3-16" Cincinnati-Acme-Fox.

Vertical Boring Mills

- 1-10" Niles; 1-72" Niles.
- 1-96" Betts.
- 1-72" Cincinnati.
- 1-60" Pittsburg.
- 2-48" Colburn; 1-42" Colburn.
- 2-42" Gisholt.
- 1-36" Bullard, Rapid Production.
- 2-36" Gisholt.
- 2-32" King.
- 1-30" Flather.
- 1-30" Gisholt.

Horizontal Boring Machines

- 1-No. 12 P. & H.
- 1-8" Bar Ingersoll.
- 1-4" Bar Gisholt.
- 1-No. 32 Giddings & Lewis.
- 3-No. 1 Barrett.
- 5-Rockford.



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Drill Presses

- 2-No. D-31 Fox.
- 1-No. 4 4-spindle Foote-Burt.
- 1-No. 3 6-spindle Foote-Burt.
- 1-2-spindle Sipp.
- 1-22" Barnes, Self Oiling.
- 1-28" Superior.

Gear Cutters and Hobbors

- 1-No. 5 60" Brown & Sharpe.
- 1-No. 4 48" Brown & Sharpe.
- 1-No. 36-H G. & E.
- 4-No. 3-26" Brown & Sharpe.
- 2-No. 18-H G. & E.
- 1-No. 6 Fellows.
- 1-18" Gleason.

Milling Machines

- 1-No. 4 Becker.
- 1-No. 4-A Brown & Sharpe.
- 2-No. 3 Brown & Sharpe.
- 2-No. 2 Brown & Sharpe.
- 1-No. 1 1/2 Milwaukee.
- 1-No. 0 Brown & Sharpe.
- 12-No. 25 Becker.
- 2-No. 2-V Brown & Sharpe.
- 2-No. 1 1/2 Garvin Duplex.
- 4-Type B Briggs.

Vertical Millers

- 1-Model ACS 2-spindle Becker.
- 2-Model SD Becker.
- 1-No. 6 Becker.
- 4-No. 4 Cincinnati.
- 2-No. 3 Cincinnati.
- 1-No. 2 Brown & Sharpe.
- 1-Model CS Becker.

Shapers.

- 1-24" Potter & Johnston, M. D.
- 1-20" Columbia, M. D.
- 1-20" Davis, M. D. 1-16" Columbia.
- 1-16" Gould & Eberhardt, M. D.

Planers

- 1-72"x84"x12' Gray.
- 1-60"x48"x12' N.-B.-P.
- 1-48"x48"x10' Gray.
- 1-48"x48"x16' Niles - Bement - Pond.
- 3-36"x36"x18' Cincinnati.
- 1-36"x36"x16' Rockford.
- 2-36"x36"x18' Ohio.
- 1-36"x30"x20' Whitcomb-Blaisdell.
- 1-30"x30"x 8' Niles - Bement - Pond.
- 1-30"x30"x8' Gray.
- 1-30"x30"x 8' Liberty.
- 2-24"x24"x8' Gray.

Grinders

- 1-26-37 1/2"x96" Norton Gap.
- 1-24"x96" Norton.
- 1-18"x96" Norton.
- 2-16"x50" Norton.
- 1-14"x72" Norton.
- 4-14"x50" Norton.
- 1-12"x120" Landis.
- 1-10"x120" Norton.
- 1-10"x72" Norton.
- 1-10"x52" Landis.
- 6-10"x50" Norton.
- 1-No. 14. 10"x18" B. & S.
- 4-10"x24" Norton.
- 2-10"x36" Norton.
- 3-No. 12 8x36" B. & S.
- 7-6"x32" Norton.
- 1-12"x36" Cincinnati Universal.
- 1-No. 60 Heald.

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Bolt and Nut and Forging Machinery

- 3/4"-1"-2"-2 1/2" and 4" Ajax steel bed upsetters.
- 2"-3"-3 1/2"-5" Acme steel bed, upsetters.
- 2 1/2" Ajax iron bed upsetter geared, with side shear.
- 4-slide cotter pin making machines.
- 5/16" Waterbury D. S. O. D. cold header.
- 1" 4-spindle Acme automatic nut tapper.
- 6-spindle Acme semi-automatic nut tapper 1/2" capacity.
- 6-spindle Acme semi-automatic nut tapper 1" cap.
- 1 1/2" Landis triple head bolt cutter.
- Landis double head bolt cutter, 1 1/4" capacity.
- 1/2" Schuster wire straightening machine.
- No. 1 Williams & White bulldozer.

Boring Mills—Horizontal

- 2 1/2" bar Cleveland, table type.
- 4" bar Niles-Bement-Pond, table type.
- 3 1/2" bar P. & H. motor drive.
- 4 1/2" bar Niles floor type.
- 5 1/8" bar Detrick & Harvey, floor type.

Boring Mills—Vertical

- 44" Baush, 2 heads, belt drive.
- 48" Colburn, 2 heads, arranged motor drive.
- 51" Niles-Bement-Pond, single pulley drive.
- 72" Sellers, rapid traverse, arranged motor drive.
- 72" Niles, rapid traverse, two heads.
- 96" Cincinnati, two heads, arranged motor drive.
- 16" Niles, two heads.
- 14" Niles, two heads.
- 10" Betts, heavy duty, motor drive.
- 12" Betts, heavy duty, motor drive.
- 10"-16" Bement-Miles, with extension head.
- 10"-16" Niles, 2 heads, friction feed.
- 16"-24" Niles with central extension head.

Drills

- 3" Cincinnati-Bickford radial.
- 4" Hammond sensitive radials with tapping attachment.
- 4" Prentice radial, motor drive.
- 5" Bickford radial, gear box.
- 6" Pond radial, belt drive.
- 6" American triple purpose radial.
- No. 14 Natco multiple.
- No. 30 Natco multiple.
- No. 16-B Natco multiple.
- 4-spindle Foote-Burt.
- 4-spindle Moline rail drill, 2" capacity.
- 6-spindle Moline cylinder borer.
- No. 25 Foote-Burt heavy duty, 3" capacity.

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Hammers

100-lb. Bradley, horizontal helve.
200 lb. Bradley upright helve hammer.

Milling Machines and Keyseaters

Type B Briggs Lincoln millers, table 54"x11½".
20"x7"x18" Oesterlein plain, belt drive.
No. 0 Rockford, plain, table 30"x7½".
Type B Becker vertical, S. P. D.
No. 2-B heavy Brown & Sharpe, S. P. D.
No. 34 Ohio plain, cone drive.
No. 2 Baker Bros. keyseater, 2" cap. automatic feed.

Planers and Shapers

36"x36"x14' Gray, 2 heads, belt drive.
42"x42"x16' Detrick & Harvey openside planer with reversing motor drive.
96"x96"x16' Pond, 4 heads, belt drive.
24" Queen City Shapers.
20" Smith & Mills crank shaper.
36" Morton draw-cut shaper.
48" Morton draw-cut shaper, with 60" stroke.

Punches and Shears

48" throat Bement-Miles, arch. jaw, 1¼"x1".
2" Garrison steel bed alligator shear.
¼" Niagara circle shear.
No. 14 Quickwork rotary shear, ⅝" cap., with 48" thrt. circle att.
½" Lennox rotary shear.
¾" Lennox rotary bevel shear.
10"x⅝" Hilles & Jones squaring shear.

Slotters

20" Bement crank, cone drive.
36" Bement crank.
48" Niles-Bement-Pond, motor drive.

Turret Lathes and Screw Machines

No. 1-B Foster, universal, geared head.
3"x36" Jones & Lamson, geared head.
18" Libby turret lathe, geared head.
24" Gisholt, cone drive.

MISCELLANEOUS

AJAX reclaiming rolls.
400-ton Niles wheel press, 96".
36"x14' Schumacher & Boye lathe.
16"x6' Pratt & Whitney tool room lathe with taper attachment.
36"x20" Allen riveter, ¾" capacity.
Nos. 1 and 2 Buffalo Forge blowers.

Machinery Av., N. E., Cleveland, O.
BATHCO—Cleveland

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LATHES

- 3-12"x5' Hendey yoke head, with taper attachments.
- 2-12"x5' Hendey yoke head, standard equipment.
- 1-14"x6' Hendey yoke head, standard equipment.
- 1-14"x6' Monarch, standard equip.
- 1-14"x6' LeBlond q. c.
- 1-16"x6' Flather q. c.
- 1-16"x6' Monarch q. c.
- 1-16"x6' Reed s. c.
- 1-17"x8' LeBlond production.
- 1-18"x8' American q. c.
- 1-18"x8' Rahn Mayer s. c.
- 1-18"x8' Reed s. c.
- 1-18"x8' Shumacher Boye q. c.
- 3-20"x9' Wicks production.
- 1-20"x8' Monarch q. c.
- 2-22"x9' American manufacturing.

DRILLS

- 1-No. 314 Baker heavy duty.
- 1-No. 216 Baker heavy duty.
- 1-Rockford H. D. all geared.
- 1-No. 25 Foote Burt s. p.
- 1-No. 24 Foote Burt s. p.
- 1-No. 65-D-5 Moline holehog 9-sp.
- 1-No. 17 Foote Burt 4-spindle.
- 1-No. 2 Foote Burt 5-spindle rail.
- 1-No. 1 Baush 16-spdl. multiple.
- 1-Fox 8-spindle multiple.
- 2-Barnes horiz. radials.
- 3-4 spindle Allen high speed.
- 2-4 spindle Avey high speed.
- 1-3 spindle Allen high speed.
- 1-3-spdl. Leland & Gifford hi spd.
- 1-new 20" Barnes camel back.
- 1-26" Aurora sliding head
- 1-32" Cincinnati sliding head.
- 1-36" Aurora sliding head, mtr. dr.

MILLS

- 1-No. 4 LeBlond plain, cone drive.
- 3-No. 3 Cincinnati pl., cone drive.
- 1-No. 2 Cincinnati all geared, high power, plain, s. p. d.
- 1-No. 3 Cincinnati plain, cone dr.
- 1-No. 2-B Rockford universal, cone drive, vertical head.
- 1-No. 14 Valley City universal.
- 1-No. 3 Brown & Sharpe vertical, all geared, s. p. d.
- 5-Gooley & Edlund mfg. all sizes.

- 3-12" Cincinnati manufacturing.
- 1-25" Bullard vertical boring.
- 1-4" Bar Niles boring and milling.

SHAPERS AND PLANERS

- 1-15" Potter & J. b. d. shaper.
- 4-16" Gould & E. b. d. b. g. shaper
- 1-16" Ohio b. g. shaper.
- 1-20" Kelly b. g. shaper, b. d.
- 3-20" G. & E. b. g., b. d. shaper.
- 2-24" G. & E. b. g., b. d. shaper.
- 1-26" S. & M. b. g., belt dr. shaper
- 1-30"x30"x8' Gray planer, 2 heads on cross rail.
- 1-36"x36"x8' Cincinnati, planer, two heads on cross rail.
- 1-30"x36"x10' Bickett iron planer, two heads on cross rail.

GRINDERS

- 1-No. 3 Brown & Sharpe univ.
- 2-No. 2 Brown & Sharpe univ.
- 1-No. 3 Bath universal.
- 2-No. 10 Brown & Sharpe plain.
- 1-14x36 Queen City pl., self-cont.
- 3-6x32 Norton plain.
- 2-6x15 Fitchburg plain.
- 4-No. 65 Heald cylinder.
- 1-Madison cylinder.
- 3-No. 2 B. & S. vertical surfacer.
- 1-14" Pratt & Whitney vert. sur.
- 1-Reed Prentice vertical surface.
- 1-No. 3 Wilmarth & Morman sur.
- 4-7½ H. P. U. S. heavy duty, motor drive, snagging.
- 1-No. 15 Bryant internal.
- 1-No. 10 Bryant internal.

TURRET LATHES AND SCREW MACHINES

- 1-28" Gisholt, ¾" spindle.
- 2-Jones & Lamson dbl. spd. flat.
- 8-No. 00 Brown & Sharpe auto.
- 2-1" Gridley multiple spd. auto.
- 2-4" Gridley multiple spd. auto.
- 1-14" Gridley multiple spd. auto.
- 2-No. 2 Warner & Swasey hand screw machines.
- 3-No. 4 Warner & S. hand screw machines, friction head.
- 2-No. 6 Warner & S. friction head, hand screw machines.
- 2-No. 4 Bardons & Oliver friction head turret lathes.

(Continued on Top Half of Next Page)

(Continued from Preceding Page)

PRESSES

- 4—No. 35 Niagara solid back, plain, flywheel.
- 1—No. 40 Bliss plain horning.
- 1—No. 54 Toledo s. s. plain.
- 1—No. 55 Toledo s. s. plain.
- 1—No. 63 Consolidated s. s. geared.
- 1—No. 8 Rockford s. s. plain.
- 1—No. 66 Bliss Consolidated s. s. double geared.
- 1—No. 4 Bliss solid back.
- 1—No. 857 Toledo rack and pinion.
- 1—No. 666 Toledo knuckle joint.

MISCELLANEOUS

- 1—24x16 Bury b. dr. air compressor.
- 1—9 $\frac{1}{2}$ x4x8 Ingersoll-Rand h. p. air compressor.
- 1—2 $\frac{1}{2}$ " Landis bolt cutter.

2—No. 3 double-spindle LaPointe broaching machines.

3—4 $\frac{1}{2}$ " Williams cutting off machines.

3—Pridemore combination electric rollover machines.

10—high speed riveting hammers all sizes.

2—10" Allis Chalmers high service Centrifugal pumps.

3—9 x 7 x 12 Worthington duplex steam pumps.

1—36" Berlin Royal Invincible three drum sander.

1—42" Berlin Royal Invincible three drum sander.

1—Rickett & Shafer $\frac{1}{2}$ " vertical radial tapping machine.

6—No. 2 Garvin tapping machines.

1—McGee motor drive wiring and edging machine.

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No. 32 Giddings & Lewis, s. p. d., 3 $\frac{1}{4}$ " bar, circular table, perfect cond.

No. 32 Giddings & Lewis, motor dr. with mtr., no cir. tbl.; perfect cond.

No. 21 Lucas s. p. drive, 2 $\frac{3}{4}$ " bar; very good condition.

No. 31 Lucas cone drive, 3 $\frac{1}{4}$ " bar; good condition.

2—3 $\frac{1}{2}$ " Western Radial Drills, gear box tapping attachment, rapid traverse, very good condition.

3 $\frac{1}{2}$ " Cincinnati Bickford Radial, late type, s. p. gear box drive, very good condition.

4 $\frac{1}{2}$ " Cincinnati Bickford Radial, s. p. gear box drive, very good condition.

4 $\frac{1}{2}$ " American Radial s. p. gear box drive, rebuilt.

3 $\frac{1}{2}$ " Wm. E. Gang Radial cone drive, reverse for tapping—\$250.00.

36x36x10 $\frac{1}{2}$ " Cincinnati motor driven Planer, two heads on rail; perfect condition.

46x36x9 $\frac{1}{2}$ " Cincinnati motor driven Planer, single head on rail; perfect condition.

51" Standard Boring and Turning Vertical Bullard Mill; 2 heads on rail; good condition.

No. 11 Williams & White Punch and Shear, 15" throat; 2 $\frac{1}{2}$ " thru 1 $\frac{1}{2}$ "; excellent condition.

200 Ton st. side Waterbury-Farrell Press; good condition.

16" Reed-Prentice Vertical Surface Grinder; A-1 condition.

6 Spindle Moline hole-hog, No. 3 Morse taper; good condition.

Fitchburg lo-swing lathe, 7x6, excellent condition.

A good assortment of Multiple Spindle Drills

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1" and 1½" Acme Upsetter or Header, steel frame, vertical release.
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 Nos. 2, 3, 4, 7 and 9 Williams-White Bulldozers.
 50, 75, 100, 150, 200, 300 and 500 lb. Bradley Upright Hammers.
 40, 60, 80, 100 and 200 lb. Bradley Cushioned Helve Hammers.
 Nos. 2-B, 3-B Nazel Air Forging Hammers.
 1500-lb. Erie Steam Forging Hammer.
 4000-lb. Massillon Steam Forging Hammer, double frame.
 No. 55 Toledo Straight Side Geared Press.
 No. 3 Massillon Trimming Press.
 No. 1 Billings & Spencer Trimming Press.
 Inclined Presses: No. 1 Bliss, No. 3-A Willard, No. 2½ Bliss,
 No. 5 Z. & H., No. 6 Adriance, No. 17 Stoll.
 Solid Back Presses: No. 3 Stiles Patt., No. 33 Toledo, No. 34 Toledo
 Grd., No. 3-A Toledo Adjust. Bed, No. 16 Bliss Horning Press.
 Rock River Sgl. End Punch, 16" thrt., arch. jaw, cap. 1" thru 1".
 Williams White SE Punch, 36" thrt., arch. jaw, M. D., 1¼" thru 1".
 Ryerson Quadruple Combination Punch, Bar and Angle Shears.
 Toledo Geared Gate Shear, cap. 60" of No. 11 gauge.
 Hilles & Jones Guillotine Shear, capacity 3" and 4" round.
 Pels Armor Plate Shear, capacity 4½" round.
 Alligator Shears, Doelger & Kirsten No. 1½, No. 2.
 No. 3 Pratt & Whitney and No. 5 Jackson Die Sinkers.
 Nos. 2 Ryerson High Speed Friction Saw, Cap. 18"-24" beams.
 12' Wall Radial Drill for Structural Work, M. D.
 Threading Machines: 1 and 2-sp. Acme & Landis 1" to 4" 2-Spdl.
 1", 1½", 2" Landis with lead screws.
 5 Thread Rollers ¾", ½", ¾" capacity.
 Pipe Threaders, Landis 4-8"; Williams 8"; Saunders 4".
 Thread Rollers, Cold Headers, Bolt Trimmers, Nut Tappers and
 Hot Pressed Nut Machines.
 6 and 8-Spindle National and Acme Vertical Semi-Automatic
 Nut Tappers, ½" to 1½".
 Blakeslee Metal Washer, motor drive.
 Wire Straighteners, 3/16", ¼", 5/16" and ¾", Wells and Shuster.
 No. 1A Am. Carbonizing Furnace, Nichrome Retort & Heat Contr.
 No. 65 American Gas Heating Machines.
 General Electric Centrifugal Compressors.
 Waterbury-Farrel Draw Bench.
 Lennox Throatless Shear, cap. 3/16".
 2 Ton Alfred Box Electric Hoist.
 Williams Chip Crusher or Shredder.
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- B-2790—No. 1-B Brown & Sharpe Plain Milling Machine, s. p. d.
 B-2688—No. 1 Brown & Sharpe Universal Milling Machine.
 B-2802—22"x12' Greaves-Klusman Loose Change Gear Engine Lathe.
 B-2801—5 ft. Foadick Plain Radial Drilling Machine, tapping attach.
 B-2898—Baker Single Spindle No. 217 Drill Press, 24" swing.
 B-2899—Barker 2-Spindle No. 217 Drill Press, 24" swing.
 B-2919—Mason 4-spindle Ball Bearing Drill Press, on floor pedestal.
 B-2765—No. 2-60" Brown & Sharpe Universal Grinding Machine.
 B-2878—No. 1½ Landis Universal Grinding Mche., 30" between centers.
 B-2763—No. 8 Badger Tool Co. Single End Face Grinder, motor driven.
 B-2761—No. 10 Bryant Chucking Grinder.
 B-2867—16"x16"x36" Schneider & Goosman Spur Grd. Planer, 1 rail hd.
 B-2602—No. 2A Warner & Swasey Universal Turret Lathe.
 B-2694—No. 52 National-Acme 4-spindle Automatic Screw Machine.
 B-2692—24" Gisholt Turret Lathe, motor driven.
 B-2105—2½"x24" J. & L. Bar Machine, belt driven.
 B-2843—2½"x24" J. & L. Flat Turret Lathe.
 B-2755—3"x36" J. & L. Flat Turret Lathe.
 B-2636—No. 2-F B. & S. Constant Speed Wire Feed Hand Screw Mche.
 B-2894—No. 21 Bliss Geared Inclination Power Press.
 B-2895—Zeh & Hahnemann 70-ton, Double Crank Single Geared
 Straight Side Press.
 B-2603—No. 20 Bliss Open Back Inclination Fly Wheel Press.
 B-2500—D. H. Stoll Co. Power Squaring Shear Type 336, shear 36" long.
 B-2704—24" Gleason Bevel Gear Planer, single tool, form pattern.
 B-2706—18" Double Tool Bevel Gear Generator, single pulley drive.
 B-2580—8' Old Style Vertical Boring Mill, one head on rail.
 B-2541—42" King Vertical Boring Mill, two swivel heads, plain table.
 B-2687—51" Niles-Bement-Pond Vertical Boring Mill, plain table.
 B-2520—48" Niles-Bement-Pond Car Wheel Boring Machine.
 B-2700—No. 5 Cochrane-Bly Cold Sawing Machine.
 B-2560—No. 14 Higley Cold Saw, belt drive.
 B-2524—Ajax 1½" Bolt Heading Machine, belt driven.
 B-2528—Ajax 2½" Forging Machine, belt driven.
 B-2184—No. 5 Williams & White Bulldozer with steam engine drive and
 belt drive.
 B-2540—No. 502 Greenlee Gainer, for car sills, motor dr. 15 h. p. motor.

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- 1-3x36 Brown & Sharpe Gear Cutter.
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- 1-6x32 Norton Cylindrical Grinder.
- 2-No. 2 Becker Vertical Millers.
- 2-No. 5B Becker Vertical Millers, with rotary table.
- 1-No. 1 1/2 Brown & Sharpe Universal Miller.
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- 1-No. 0 Van Norman Duplex Miller.
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- 1-No. 20 Bliss Press, Inclinable.
- 1-No. 30 Bliss Arch Press with roller feed.
- 1-No. 1 Cam Bliss Toggle Press.
- 1-No. 55 Swaine Press, plain flywheel.
- 1-No. 5 Bliss Styles Punch Press, back geared.
- 1-No. 3 V. & O. Inclinable Press.
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| 12"x 8' Cleveland, geared head. | 16"x 8' Hamilton, quick change. |
| 14"x 6' Carroll-Jamieson, new, q. c. | 18"x10' American, quick change. |
| 14"x 6' Hamilton, grd. hd., motor dr. | 20"x10' Hamilton, rapid production. |
| 14"x 6' Monarch, quick change. | 20"x10' Prentice, taper attachment. |
| 14"x 6' Sebastian, grd. hd., m. d. | 24"x24' Prentice, with raising block. |
| 14"x6' Worcester. | 36"x60' & 34"x60' Fitchburg, Lo-Swing |
| 14"x 8' Sidney, double back geared. | South Bend, new, all sizes. |

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| No. 52 National Acme automatic. | 14" Milholland. |
| No. 53 National Acme automatic. | 2x24 and 3x36 J. & L. |
| No. 54 National Acme automatic. | No. 1 Foster, 13/16" capacity, (2). |
| No. 4 Defiance, 14" capacity. | Warner & Swasey No. 2. |
| 14" capacity Smurr & Kamen. | |

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| 14" Niles, traveling head. | 16" O. & S., b. grd., new, low price. |
| 14" Steptoe, crank. | 24" O. & S. back geared crank. |
| 16" Barker. | |

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| No. 10 and No. 15 Excelsior, foot. | No. 5 Federal o. b. i. |
| Nos. 3-A & 5-A Willard inclinable. | No. 34 Bliss toggle. |
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DRILLS and RADIALS

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| No. 1 Haush multiple. | 6' Ceiling drill. |
| Baush 5' radial. | 25" Kokomo high speed. |
| Hilbert 3' radial. | 44" Stover. |
| 32", 24", 26", 28" and 32", sliding hd. | Sipp high speed, single-spindle. |
| 32" Hoefler, sliding head. | Hole Hog, No. 66-D, 7-spindle. |

MILLING MACHINES

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| No. 14 American plain. | No. 25 Becker plain, power feed. |
| One No. 1-Y Brown & Sharpe, plain. | No. 2 H Brown & Sharpe plain. |
| No. 2 Kempsmith plain. | Oesterlein 24x74x18 plain. |
| No. 3 Kempsmith plain, new. | Ingersoll 24" x 20" x 8" horizontal |
| No. 25 Bilton. | motor drive. |

GRINDERS

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| Nos. 1 & 78 W. & M. surface. | No. 60 Heald cylinder. |
| 6"x15" Fitchburg plain. | Schmitt cylinder grinder. |
| 12"x36" Cincinnati universal. | J B X, W. & M. tool and cutter. |
| 16"x42" Landis universal. | No. 10 Bealy 18" double disc. |
| 36" and 66" Yates plate. | No. 20 Bryant, chucking. |

MISCELLANEOUS

- | | |
|--------------------------------------|--|
| Band saw, Clark, compound. | Planer, 24"x24"x6' |
| Band saw, Napier 10"x10'. | Planer, 36"x36"x14' Gray, 2 heads. |
| Blower, No. 6 Piqua, pressure. | Planer, 42"x42"x12' Gray, 2 heads. |
| Blower, positive pressure, Leiman | Planer, 48"x48"x16" Cincinnati, 4 hd. |
| Boring mill, Colburn No. 3, tur. hd. | Punch & shear, 4x4x10" throat. |
| Brake 10', Keene, 18 ga. | Riveting hammers, Nos. 1, 2, 3, 4-A |
| Brake, 12' Chicago Steel 18 gauge. | High Speed. |
| Broaching mchs., 1 and 3 LaPointe. | Sand blast, Boland. |
| Compressors, 6x8, 8x8 and 9x8. | Scale, 1500 lb. Toledo, dial type. |
| Gear cutter, No. 3—26 B. & S. | Shear, 60" Peck, Stow & W., 18 ga. |
| Gear cutter, No. 13 Brown & Sharpe. | Shear, No. 362 Robinson. |
| Gear miller, Bilton No. 1. | Shear, No. 20 Quickwork, 30" throat. |
| Hammer, 150 lb. Standard drop. | Shear, circular, Pettingell, 60" thrt. |
| Pipe machines, 2", 4" & 6". | Threading mchs., W. & P. 2-spindle. |
| Planer, 36"x36" Gray, heavy duty. | Washing machine, Blakeslee. |

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BORING MILLS:	D. & H. Horizontal Floor Borer 5" bar. Gisholt 42", Colburn 72", Betts 7'/10' Vertical.
DRILLS:	20" Snyder, 24" Weigel, 14" Rockford. 4' Western; 10' Bausch Radials. 2' Foscick, 3' Bickford, t. a. Moline 10-spindle, No. 5 Morse taper. Bausch Multiple Drill, 12-spindle.
LATHES:	14"x6' Hendey, t. a.; 10"x5' Reed. 16"x8' 7" American, h. s., t. a. 24"x12' Rockford, taper alt. 24"x12' 10" American q. c. g. 26"x16' Prentice, taper attachment. 36"x18' Porter. 48"x34' Pittsburgh, m. d. 54"x27' Pond; 63½"x36' 6" Centers Niles H. D. 18"x12' Roll Turning. 1"x15" Pratt & Whitney Turret Lathe. Ingersoll Fixed Rail, 24"x21"x20' table. Ingersoll Slab 30"x30"x12', m. d.
MILLING MCHES.:	Canedy-Otto, hand power, ½"x½". No. 6 Long & Allstatter S. E. Royersford No. 3, 16" throat 1"x1". Cleveland "EF", 36" throat 1¼"x1". Kent Sgl. End, 24" thr., 1"x1". Industrial Double End, ⅞"x⅞". No. 2 Hilles & Jones hor. punch, 8" throat. Doelger-Kirsten No. 2 Alligator, high knife. Marshalltown No. 10-P Throatless.
PUNCH & SHEAR:	
GRINDERS:	Bridgeport Knife & Drill. Besly No. 3 Disc. Cincinnati 10"x48" Grinder. Cincinnati 12"x72" Plain Cylindrical Grinder.
SHAPERS:	14", 24" Gould & Eberhardt, b. g.
MISCELLANEOUS:	Bailing Machine with 40 h. p. motor. Hammer, 250 lb. Little Giant m. d. Planers, Cincinnati 48"x44"x12'. Planer, Flather 48"x48"x16' heavy duty. Planer, 48"x48"x21' Gray, 3 heads. Planer, 48"x48"x16' D. & H. Openside. Planer, 72"x54"x12' Niles-Bement-Pond. Planer, Detrick & H. Openside, 96"x72"x26'. Presses, No. 3 V. & O.—O. B. I. Presses, Nos. 18 and 19 Bliss, Perkins. Press, 50 ton Lourie Hydraulic. Presses, Arbor, 20 ton Weaver; No. 3½ Greenerd. Profiler, P. & W. table 12"x15", double spindle. Saw, Hunter 24" hi-speed, m. d. Saw, 18" Higley Cold. Saw, No. 3 Sterling Hack 9"x9". Screw Machines, Gridley Model G ⅞", M. D. Cone ⅞", M. D. Screw Machine, 2¼"x11" Acme. Screw Machine, Meriden. 6 hole turret. Surface Plate 44½"x6' 8", 6½" thick. Welder, Westinghouse Arc, with 10 h. p. mtr. compl. Wire Straighteners, Schuster ¼" and ⅛".

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Iron and Sheet Metal Working Machines

Presses

- No. 36 Toledo S. S. B. G. 4" Stroke, Wt. 14000 lbs.
 1—No. 21 Bliss O. B. I., wt. 3800 lb. each, stroke 24"
 No. 2 Robinson Plain S. S. Press, wt. 3500 lbs., 2" stroke.
 No. 15 Waterbury Pl. S. S. 24" bet. Housing 5" Stroke Wt. 6000 lbs.
 4—Plain Fly Wheel Presses, wt. 2000 lbs. each, 1 1/2" stroke.
 No. 63A Waterbury Farrell S. S. B. G. 6" and 8", Stroke 21" Bet. Housing Wt. 9000 lbs. (2).
 No. 39 Bliss Horn Presses with adjustable tables, (2).

Punches

- Queen City Multiple Punch, 30" between housing.
 No. 4 Long & Allstatter Single End Back Geared, capacity 1/4" thru 1".
 No. 6 Whiting Single End, Back Geared, capacity 1/4" thru 1".
 1—Bertsch Rapid Production Punch 18" throat, archt. jaw, wt. 3500 lbs.
 3—No. 15 Toledo 15" throat.

Gear Cutters

- No. 3—26" B. & S., Spur.
 No. 13 B. & S., Spur and Bevel.
 36" Gould & Eberhardt Hobber.
 15" Gleason Bevel Gear Generator.
 30" Flather Spur Gear Cutter.

Press Brake

- 1—10' Streine (POORMAN type) Power Press Brake, 3/16" capacity, arranged for mtr. dr., wt. 40000 lbs.
 4' Robinson Hand Brake 10 g. cap.

Shapers

- 20" Steptoe B. G. Crank, (3).
 16" Steptoe Plain Crank.
 16" Ohio Plain Crank.
 15" Potter & Johnson crank shaper, cone drive, power down feed.
 12" Steptoe Plain Crank.

Bolt Cutters

- 1" Landis single head (with dies).
 2" Acme Model B. (without dies).

Millers

- No. 14 Valley City Plain.
 No. 1-B Brown & Sharpe Cone Dr.
 No. 14 Cincinnati Universal.
 No. 2 Cincinnati Plain, 3 step, d.b.g.
 No. 2 Cincinnati Universal.
 No. 3 B. & S. Plain, Cone Drive.
 No. 4 Cincinnati Plain.
 No. 2 Becker Vertical.
 No. 24 LeBlond Universal.
 No. 3 LeBlond (Univ.) Cone Drive, 3 step, d. b. g.

Radial Drills

- 3', Mueller, Plain, C. D.
 4', Fostick, Plain, C. D.
 5' American, S. P. D.
 6', Dreses, Plain, M. D.

Square Shears

- 2—24" Foot Power Square Shears.
 3—30" Foot Power Square Shears.
 1—Whitcomb Power Slitting Shears.
 1—8' Power Square Shear, cap. 20 ga.
 1—10' Bertsch Power Square Shear, overhead drive, 14 gauge capacity.
 12' Streine Power Square Shear, under-drive type, 16 gauge cap.
 No. 15A Niagara Circle Shear.

Lathes

- 18"x8' Mueller cone drive, q. c. standard equipment.
 20"x8' American quick change c. d., s. b. g. standard equipment.
 24"x14' Boye & Emmes quick chge. c. d. d. b. g. standard equipment.
 24"x16' Bradford standard screw cutting.
 36"x14' Putnam semi-quick change, triple geared, internal face plate drive.
 27x18' Bridgeford, 3 s., dbl. b. gear, and taper attachment.

Hack Saws

- 7x7 Atkins Quick Cut S. P. Drive.
 12x15 Racine High Speed with 3 speed transmission drive.
 13x15 Racine High Speed with 3 speed transmission drive.
 27" Q. & C. Cold Saw, motor driven.
 12" Sellers Slotter.

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- 1—Bullard 8" Mult-au-Matic.
- 1—Bullard 24" New Era.
- 1—Bullard 36" r. p., side head.
- 1—Baush 42" vertical, 2-heads.
- 1—Niles 42" vertical, 2-heads.
- 1—Putnam 44" vertical, 2 heads.
- 1—Sellers 72" vertical, 2 heads.
- 1—Betts 10" vertical, 2-heads.
- 1—N-B-P 10-16" vertical, 2 heads.
- 1—Pond 10-24" vertical.
- 1—Cleveland 24" bar, horizontal.
- 1—Pawling & Harnischfeger 34" bar
- 1—Detrick & Harvey 4" bar, hor.
- 1—N-B-P 44" bar, duplex cont. hor.
- 1—Rockford No. 2 horizontal.

DRILLS—Multiple Spindle

- 16—Baush Nos. 1, 2, 3 and 4.
- 5—Detroit 5-spindle.
- 4—Natco Nos. 11 and 30.

DRILLS—Upright

- 1—Allen 4-spindle.
- 2—Barnes 20" and 24" camel back.
- 1—Foote-Burte 4-spindle.
- 6—Henry & Wright 2, 3, 4, 6-spdl.
- 1—Pratt & Whitney No. 2 gun brl.
- 1—New Turner No. 3 vertical.

DRILLS—Radial

- 1—Cincinnati 3'.
- 3—Western 3' plain.
- 1—American 4' plain, trip. purpose.
- 1—Amer. 6' plain, tripl pur.
- 1—Baush 6'.
- 2—Dreses 5', 6' plain.
- 1—Cincinnati Bickford 6' plain.
- 1—N-B-P. 96" plain.
- 1—Cincinnati Bickford 6' universal.

GEAR CUTTERS

- 7—B. & S. 3x26, 3x36, 4x36.
- 3—B. & S. No. 6, 60" cap.
- 1—G. & E. No. 18-H.
- 1—Cincinnati 16" Gear Hobber.
- 3—Fellows Gear Grinders.
- 3—Gleason 15" spiral bev. roughers.
- 4—Gleason 6", 11", 18".
- 1—Gleason 24" bevel gear planer.
- 5—Fellows Nos. 6, 61, 65, 615.

GRINDERS

- 3—B. & S. Nos. 1, 2, 3.
- 4—Cincinnati No. 2, 12x36, plain.
- 9—Landis 6x18, 10x24, 10x36, 12x36, 12x96 plain.
- 7—Norton 3x18, 6x32, 10x24, 10x36, 10x50, 16x36, 16x72 plain.
- 2—Landis 10x52 cam.
- 1—Norton 10x24 Type BA; m. d.
- 1—Persons-Arter 8" surfacer.
- 1—Springfield Brandes vert. grinding planer.

- 12—Heald Nos. 65, 60, 70.

- 1—Bath Spline.

HAMMERS

- 1—New Bradley 30 lb. helve.
- 1—Chambersburg 400 lb. bd. drop.
- 1—B. & S. 800 lb. drop.
- 1—Toledo 1500 lb. bd. drop.

MILLING MACHINES

- 2—Cincinnati 15" duplex.
- 6—B. & S. Nos. 2, 2B, 3, 4, plain.
- 8—Cincinnati Nos. 2, 3, 3-S, 4 plain.
- 2—Garvin No. 134 plain.
- 3—Garvin Nos. 14, 2A universal.
- 12—Becker Nos. 3H, 4B, AB, 5C, 6, C1, vertical.
- 7—P. & W. 44x12, 6x14, 6x48, 6x80 th.
- 11—P. & W. 5", 8", 10", 12" auto.

LATHES

- 1—Hendey 16"x8", geared head.
- 6—Lodge & Shipley 16"x8" selective gear head, with taper att.
- 3—LeBlond 26"x10" duplex crank.
- 1—Johnson 30"x12", m. d.
- 1—Hendey 24"x12".
- 1—Bridgeford 42"x36"; grd. hd.
- 1—American 36"x24".

Lathes of all sizes and types.

SCREW MACHINES—Automatic

- 14—Cleveland 1", 1 1/2", 2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48", 54", 60", 72", 84", 96", 108", 120", 144", 168", 192", 216", 240", 270", 300", 324", 360", 400", 450", 500", 540", 600", 648", 720", 800", 900", 1000", 1100", 1200", 1300", 1400", 1500", 1600", 1700", 1800", 1900", 2000", 2200", 2400", 2600", 2800", 3000", 3200", 3400", 3600", 3800", 4000", 4200", 4400", 4600", 4800", 5000", 5200", 5400", 5600", 5800", 6000", 6200", 6400", 6600", 6800", 7000", 7200", 7400", 7600", 7800", 8000", 8200", 8400", 8600", 8800", 9000", 9200", 9400", 9600", 9800, 10000.
- 4—Cleveland 1", 1 1/2", 2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48", 54", 60", 72", 84", 96", 108", 120", 144", 168", 192", 216", 240", 270", 300", 324", 360", 400", 450", 500", 540", 600", 648", 720", 800", 900", 1000", 1100", 1200", 1300", 1400", 1500", 1600", 1700", 1800", 1900", 2000, 2200, 2400, 2600, 2800, 3000, 3200, 3400, 3600, 3800, 4000, 4200, 4400, 4600, 4800, 5000, 5200, 5400, 5600, 5800, 6000, 6200, 6400, 6600, 6800, 7000, 7200, 7400, 7600, 7800, 8000, 8200, 8400, 8600, 8800, 9000, 9200, 9400, 9600, 9800, 10000.
- 17—Gridley 1", 1 1/2", 2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 30", 36", 42", 48", 54", 60", 72", 84", 96", 108", 120", 144", 168", 192", 216", 240", 270", 300", 324", 360", 400", 450", 500", 540", 600", 648", 720", 800", 900", 1000", 1100", 1200", 1300", 1400", 1500", 1600", 1700", 1800", 1900", 2000, 2200, 2400, 2600, 2800, 3000, 3200, 3400, 3600, 3800, 4000, 4200, 4400, 4600, 4800, 5000, 5200, 5400, 5600, 5800, 6000, 6200, 6400, 6600, 6800, 7000, 7200, 7400, 7600, 7800, 8000, 8200, 8400, 8600, 8800, 9000, 9200, 9400, 9600, 9800, 10000.
- 9—Gridley 34" single.
- 6—New Britain Nos. 23, 24, 53.
- 4—Nat'l Acme Nos. 52, 54, 56, 515.
- 11—P. & J. No. 5-A, No. 6-A.

TURRET AND SCREW MCHS.

- 1—Acme Fox Monitor.
- 6—Foster Nos. 2, 4, 6.
- 4—Greenlee 24x26.
- 16—J. & L. 24x24, 3x36.
- 1—Libby 26" 4 1/2" hole.
- 1—W. & S. No. 6.
- 1—H. & S. No. 6.
- 1—Steinlee 21" Turret.

PLANERS

- 2—Putnam 26x36x8", 2 heads.
- 1—Gray 38x38x20", 3 heads.
- 1—Woodward & P. 36x36x16", 4 hds.
- 1—Detrick & Harvey 30"x10", single head, openside.

SHAPERS AND SLOTS

- 2—Gould & Eberhardt 20", 24".
- 2—Cincinnati 16", 20".
- 1—Dill 15-18" Slotter.
- 1—Niles 30" Slotter.

MISCELLANEOUS

- LaPointe Broaches (Hudson & New London) 1, 2, 3 and 4.

This represents but a portion of our stock. Send us your inquiries—we have just made an attractive purchase.

MOREY AND CO., INC. 408 Broome St., NEW YORK, N. Y.

Good Used Modern Machine Tools

Recently released from production on account re-
placements and manufacturing changes. Priced to
insure quick sale.

Further specifications, including photographs where
available, gladly sent on request.

TURRET LATHES

- 1—2¼" Jones & Lamson Flat Head, single pulley drive, bar equipment \$ 150.
- 2—Model H-21" Gisholt, 2 step cone, taper attachment, each 350.
- 1—No. 1-¾" Wood Tilted Turret, 3 step cone, auto chuck and bar feed 100.

PLAIN MILLERS

- 2—No. 3 Brown & Sharpe, 4 step cone, bk. grs., range 32"x10"x22", ea. \$ 400.

VERTICAL MILLERS

- 1—No. 4B Becker, 3 step cone, range 62"x20"x22", REBUILT \$3,050.
- 1—No. 4B Becker, 3 step cone, range 28"x14"x19" REBUILT 1,450.
- 1—No. 5C Becker, 3 step cone, range 54"x16"x18" REBUILT 2,450.
- 1—ACS Becker Continuous Rotary, range 31½"x21¼" dia. rotary 28".
Two spindle 1,500.

DUPLEX MILLERS

- 1—No. 8 Becker, single pulley drive, distance between spindles 75",
table, 26"x56" \$1,000.

PLANERS

- 1—24"x34"x16" Cincinnati, 2 railheads, power elevator, table 30" \$ 650.
- 1—30"x30"x12" Whitcomb, 2 railheads, power elevator, table 30" 800.
- 2—36"x36"x12" Woodward & Powell, 2 railheads, power elevator, table
32", each 1,500.
- 1—42"x42"x26" Woodward & Powell, 2 side hds., pwr. elevator, tbl. 38" 2,000.

GRINDERS

- 1—No. 14 Brown & Sharpe, pl., 6"x48", 18"x1½" wheel, countershaft \$ 150.
- 1—10"x72" Norton, plain 450.
- 1—No. 1 Norton Cutter and Reamer, 8"x15½", countershaft 125.
- 1—8" Walker Cup, late type, 12" magnetic chuck, used but 2 years 1,000.

GEAR CUTTERS

- 1—36" Fellows, oil pump, countershaft \$ 100.
- 1—Betts Machine Rack Cutter, capacity 48"x5", 3 pitch 150.
- 1—Gear Tooth Rounder, 5° movement head, good condition 50.

HORIZONTAL BORING MACHINES

- 1—4" Spindle Giddings & Lewis, floor type, Verniers all feeds, Universal
table, motor drive thru gear box, used but 5 years \$5,500.
- 1—Lucas Boring, Drilling and Milling, 4 step cone, 3" bar, tbl. 22"x42" 1,500.

SCREW MACHINES

- 1—¾" Gridley Single Spindle with collets and pads \$ 200.

CUTTER RELIEVING MACHINE

- 1—Becker, geared motor drive, 110 volt, D. C., Reliance 180-1800
R. P. M. motor, capacity 13" dia. 12" long straight and taper \$1,000.
- 1—Type M. Dings Magnetic Separator 100.

Miscellaneous platform scales, lathe dogs, surface
plates, electrical equipment, etc.

Reed-Prentice Corporation Worcester, Mass.

Branch Offices: 3-235 General Motors Bldg., Detroit, Mich.
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No Hidden Prices

Our machine tools are rebuilt and guaranteed

LATHES

42"x40' Pond Face plate drive, heavy duty, with 40' ext.....	\$2000.
42"x24' Pond face plate drive, heavy duty.....	1600.
28"x10' Lodge & Shipley quick change d. b. g. hvy. duty.....	950.
24"x14' Whitcomb Blaisdell q. c. d. b. g., t. a.....	750.
24"x8' Schumacher-Boye q. c., d. b. g., t. a.....	850.
18"x8' Sidney, q. c., d. b. g., heavy pattern, 90% new.....	850.
18"x8' Hendey q. c., yoke hd., with chuck.....	850.
18"x8' Lodge & Shipley q. c., with extra p. l. turret.....	450.
16"x10' LeBlond q. c.....	550.
16"x7' LeBlond production lathe, q. c.....	375.
16"x6' LeBlond production lathe, q. c.....	325.
16"x6' Bradford quick chge., with taper attach.....	550.
14"x6' Mulliner q. c., fine tool room lathe, Hendey pattern	450.
11½"x6' Sidney qk. chge. (never under belt).....	330.
11½"x5' Sidney qk. ch. (never under belt (2) each.....	325.
9"x12' Sundstrand grd. hd. production, ball bearing each...	225.

SHAPERS

16" G. & E. crank, hi duty.....	\$ 675.
16" G. & E. crank, hi duty.....	650.
16" Cincinnati crank, s. p. d....	550.
16" Hamilton crank, hvy. pat.	475.
17" Smith & Mills crk. shaper	350.
7" Rhodes shaper slotting hd.	300.

DRILL PRESSES

4' Carlton heavy duty radial, motor driven, box table.....	\$ 675.
7' Pond heavy pattern.....	1200.

26" Superior h. d., sliding head	250.
28" Barnes sliding head, t. a....	250.
26" Prentice sliding head, t. a., s. p. d., vise table.....	275.
22" Silver sl. hd., hvy. pattern	150.
No. 20 Baker auto., rotary tbl., multiple head, ball bearing...	450.
4-sp. Kern b. b. drill press, t. a.	850.

GRINDERS

No. 3 Landis full univ., 12"x36", complete.....	\$ 625.
No. 1 Greenfield plain 5"x14".....	275.
No. 2 Oesterlein cutter.....	250.
No. 75 Heald internal.....	250.
No. 14 B. & S. plain, self cont.	875.

MILLING MACHINES

No. 3 Brown & Sharpe plain...\$	600.
No. 3 LeBlond plain.....	550.
No. 2 Oesterlein plain.....	325.
No. 1½ B. & S. univ. with div. head and vise.....	750.
No. 1 LeBlond plain.....	150.
No. 2 Knight vert. drill. & mill. mch. grd. spds. & fds. to tbl.	850.

MISCELLANEOUS

No. 5A Potter & J. auto., ea...\$	250.
No. 4 Foster screw machine...	350.
Martin marking mchs., (2) ea.	50.
12"x12" Racine power hack saw, motor drive.....	300.
5½" Newton cold cut off saw...	225.
No. 3 LaPointe double broaching machine.....	300.
No. 3 Baker keyseater.....	325.
No. 5A high speed riveting hammers, 90% new each.....	300.
No. 4 Lees-B. thread miller...	325.
No. 3 B. & S. 36" gear cutter...	275.
No. 6 Fellows 36" gear shaper	275.
5 h. p. 60 c., 3 ph. Ransom heavy snagging grinder.....	160.
No. 10P Marshalltown throatless shear.....	200.

Every Machine a Good Buy

This is a partial list of machinery that we have in stock—Send us your inquiries, as we may have what you want.

The Toledo Mchy. Exch. Co.
18 North St. Clair St., Toledo, Ohio

Good Rebuilt Machines

—Guaranteed—

BOLT CUTTERS

- 1—Acme $\frac{1}{2}$ ", 2-spindle.
- 1—Acme 1", 3-spd., with lead screw.

BROACHES

- 3—Hudson LaPointe No. 1.
- 1—J. N. LaPointe No. 3, double spindle, belt drive.
- 1—J. N. LaPointe No. 3, double spindle, motor drive.

DRILLS

- 2—22" Aurora sliding head.
- 2—21" Cincinnati sliding head.
- 2—Kokomo 24", sliding head.
- 2—Snyder 28", sliding head.
- 1—Kokomo 28" sliding head.
- 1—L. & G. single spindle, h. s., b. b.
- 1—2-sp. Henry & Wright h. s., b. b.
- 1—2-sp. Leland & Gifford s. s., b. b.
- 1—Allen 4-spindle, h. s., b. b.
- 1—Sipp 3-spindle, h. s., b. b.
- 1—Nasco Garvin ISS, double end.
- 1—Footie-Burt 15 $\frac{1}{2}$.
- 2—20" W. F. & John Barnes.
- 1—Carlton 2 $\frac{1}{2}$ " radial.
- 1—American 4" radial.
- 1—4" Cincinnati radial.
- 1—4" Dreses radial.
- 1—6" Dreses radial.

GRINDERS.

- 1—Brown & Sharpe universal, No. 3.
- 2—5x18 Ott plain cylindrical.
- 2—6x32 Norton plain cyl., motor drive and belt drive.
- 1—10x18 Norton plain cyl., motor dr.
- 1—10x36 Norton plain cyl., motor dr.
- 3—6x18 Landis plain cylindrical.
- 1—12x72 Landis pl., self contained, motor drive.
- 2—Gisholt cutter grinders, motor dr.
- 1—Bath universal.
- 1—Morse No. 1 Plain.
- 1—Wilmarth-Morman plain cyl.
- 2—Oliver drill grinders, motor drive.

GEAR CUTTING

- 1—5A Lees-Bradner Hobber.
- 1—16" Cincinnati Hobber.
- 1—Barnes 2-way Drill.
- 1—Rockford 2-way Drill.

LATHES

- 2—16x6 Monarch screw cutting.
- 1—14x6 Hendey tool room.
- 1—16x6 Hendey tool room.
- 1—16x6 Lodge & Shipley q. c.

- 1—20x10 LeBlond q. c., taper attach.
- 1—18x8 Monarch quick change.
- 1—21" Gisholt turret, late type.
- Nos. 2, 4 and 6 Warner & Swasey turret.

MILLING MACHINES

- 3—Model C Becker, rotary table.
- 1—18" Cincinnati auto. knee type.
- 3—24" Cincinnati automatic mill.
- 1—Kent-Owens semi-automatic.
- 1—24" Cincinnati semi-automatic.
- 1—14" Cincinnati semi-automatic.
- 1—18" Cincinnati semi-automatic.
- 2—Pratt & Whitney No. 2 plain.
- 2—Fox Hand Mills.
- 1—Becker semi-automatic.
- 1—24" Cincinnati duplex mill.
- 1—Gooley & Edlund, Lincoln Type A
- 1—No. 6 Becker plain mill.
- 1—No. 2 Brown & Sharpe universal.
- 1—No. 2 LeBlond universal.
- 1—30" Newton C-65A rotary m. dr.

SHAPERS

- 1—26" Kelly.
- 1—24" Steptoe.
- 1—20" Cincinnati d. b. g., crank.
- 1—20" Kelly.
- 1—16" Ohio.

TAPPING MACHINES

- 3—2X Garvin automatic.
- 2—No. 2 Garvin automatic.
- 2—Gateman automatics.
- 2—Rickert & Shafer automatic.

AUTOMATIC THREADING MACHINES

- 2—Rickert & Shafer single spindle automatic, motor drive.

SCREW MACHINES & CHUCKING MACHINES

- 3—No. 7 Hardons & Oliver.
- 1—No. 6 Warner & Swasey.
- 2—No. 8 Warner & Swasey.
- 1—5A Potter & Johnston. 21000 serial.
- 1—2" Cleveland auto., motor drive.
- 1—53 New Britain automatic.

MISCELLANEOUS

- 2—40 lb. Bradley Hammers.
- 1—Knowles Keyseater.
- 1—No. 6 Niagara Press.
- 1—Toledo Butt Welder.
- 1—Wire Straightener.
- 1—Pettingill Bumping Hammer
- Yoder Sheet Metal Machinery.
- 1—Cochrane & Bly Cold Saw.
- 1—Band Saw.

This represents only a portion of our stock, which is changing daily. Let us have your inquiries for whatever you need and they will receive our prompt attention.

PALMER-EDWARDS CO.

906 Leith St.,

FLINT, MICH.

Exceptional Values

Broaches

- 3—LaPointe Nos. 1-2 and 3.

Drills

- 1—American 26" S. S.
- 7—Aurora 21-24" S. S.
- 4—Avey No. 1 1/2 High Speed S. S.
- 3—Avey No. 2 High Speed S. S.
- 2—Barnes 15" S. S.
- 1—Barnes 25" S. S.
- 4—Barnes Camel back 24".
- 6—Cincinnati 21-36" S. S.
- 5—Kern 20" S. S.
- 1—Rockford 12" S. S.
- 4—Sipp 16" High Speed S. S.
- 1—Superior 26" S. S.

Drills—Multiple

- 1—Barr 3-spindle Sensitive.
- 1—Foote-Burt No. 4, 6-sp. special.
- 1—Gardam 34-spindles.
- 1—Mason 3-spindle high speed.
- 1—Rockford, 4-spindles.

Drills—Radial

- 3—American 36" Sensitive.
- 2—Carlton 36" Sensitive.

Gear Shapers

- 9—Fellows No. 6 and 36".

Grinders

- 1—Cincinnati 12x36" Pl. External.
- 13—Heald Int. Nos. 60-65-70-75.
- 1—Brown & Sharpe No. 22 Int.
- 1—Capitol No. 1 Internal.
- 3—Bryant Chuck. Nos. 6 & 15A.
- 19—Norton Pl. Ext. 6x32, 10x24, 10x36, 10x50, 10x72, 14x72.
- 1—B. & S. No. 11 Plain Ext.
- 1—No. 3 Ohio Univ. Tool & Cut.
- 2—No. 205 Rivett Radial.
- 1—No. 2 LaSalle Surface.
- 2—No. 3 Landis Universal.
- 2—No. 6 Rivett Universal Inter.
- 2—No. 14 Bealey Disc.
- 1—Gardner Disc.
- 1—Norton Tool & Cutter.

Hammers

- 1—No. 40 Beaudry.

Lathes—Engine—Miscellaneous

- 2—14x6, 16x6 Amer. B.G., Q.C.
- 2—14x6, Carroll & I. B. G., Q. C.
- 1—16x6 Chard B. G., Q. C.
- 2—24x11 Chard B. G., Q. C.
- 4—Fitchburg Lo-Swing 3 1/2x60".
- 1—Fitchburg Lo-Swing 4".

- 5—Greaves & Klueman 16x6, 18x8, 30x8, B. G., Q. C.
- 2—LeBlond 17x12, 21x12, B. G., Q. C.

- 1—Hamilton, 16x6, B. G., Q. C.
- 6—Lodge & Shipley 16x8 16x6, 20x12, 22x10, B. G., Q. C.
- 1—L. & S. Duplex 24x12 Cr. Pin.
- 5—Sidney 17x8, B. G., L. C. G.

Lathes—Turret and Screw Mchs.

- 2—Acme 2 1/4x11-26".
- 1—Bardons & Oliver No. 4.
- 2—Dreses 18 and 20".
- 2—J. & L. 3 1/4 S. S.
- 4—W & S. 18", No. 6.
- 1—Millholland Screw 1 1/2".
- 3—Foster No. 2 Hand.

Milling Machines—Vertical

- 1—Becker No. 5.

Milling Machines—Horizontal

- 3—B. & S. No. 1 1/2 B, 2B, 12.
- 7—G. & E. (Briggs) A38" & B102.
- 2—Milwaukee Nos. 2B and 3B Double Overarm.
- 1—Stephoe Hand with Vert. Att.

Milling Machines—Slab

- 1—Ingersoll 20x20x12"

Planer

- 1—American 30x30x10.

Presses

- 2—Toledo Incl. Nos. 1, 3 1/2.
- 1—Max Ams No. 124.
- 2—Hyman Straight Column.

Saws

- 1—Atkins Power No. 7.

Screw Machines—Automatic

- 2—Cleveland S. S. 2" and No. 3.
- 4—Gridley 3/4" 4-spindle.
- 3—Gridley, 1 1/4", 4-spindles.
- 1—Gridley, 1 1/4, 4-spindles.

Shapers—Crank

- 1—American 20".
- 1—G. & E. 16" Hi-Duty.
- 1—Lodge & Davis 16".
- 2—Stephoe 16".

Miscellaneous

- 1—Ingersoll Rand 5x5 Air Compr.
- 1—Lot motors AC & DC ranging 1/4 HP to 50 HP.

The Indianapolis Machinery & Supply Co.
2141 Yandes Street, Indianapolis, Indiana

High Grade Machine Tools

Lathes

- 36"x18" Fifield Engine Lathe.
- 30"x18" LeBlond, 5 S. C. Q. C.
- 36"x60"x12" Harrington Lathe.
- 24"x12" Draper Engine Lathe.
- 26"x12" Putnam Q. C.
- 21"x10" LeBlond h. d., late type.
- 25"x10" LeBlond. Q. C. late type.
- 20"x8" Hendey, yoke head, t. a.
- 18"x8" American, Q. C. Cone drive.
- 18"x 8" Rahn-Larmon Q.C. late type.
- 16"x8" Cincinnati late type, Q. C.

Grinders

- No. 70 Heald Grinder.
- No. 60 Heald, \$275.00 each.
- 10"x20" Landis.
- 10"x52" Landis, self contained, 95% new.
- 16"x72" Landis crankshaft.
- No. 2 Oakley univ. tool grinder.
- No. 1 LeBlond Tool Grinder.
- Modern Chaser Grinder.
- Yankee Drill and Tool Grinder.

Milling Machines

- No. 4 LeBlond Plain Miller.
- No. 3 Cincinnati univ., cone drive.
- No. 3-H LeBlond Pl. Miller, latest type
- No. 2 Kemp Smith, Universal.
- No. 1 1/2 Valley City.
- No. 3 Brown & Sharpe.

Radial and Upright Drills

- 4" Bickford, Gear Box, S. P. D.
- 26" Barnes, latest, tap. att.
- 26" Cincinnati Upright, C. D.
- 26" Rockford Upright, C. D.
- 25" Superior Upright, C. D.
- 6-spindle Rockford 20" B. G. P. F.
- 20" Barnes camel back.

Shapers

- 15" Springfield, cone drive.
- 20" Hendey.
- 20" Ohio Crank Shaper.
- 20" Steptoe B. G. Crank Shaper.
- 24" Steptoe B. G. Crank Shaper.
- 24" Smith & Mills B. G. Crk. Shaper.
- 28" Queen City, S. P. D.

48x48x16' Detrick & Harvey Openside Planer, excellent condition....\$2,750.00

Gear Cutters

- 60" Brown & Sharpe Gear Cutter.
- 36" Brown & Sharpe Gear Cutter.
- 36" Whiton Bevel & Spur Gr. Cutter.
- 18" Schuchardt & Schutte Hobbers.

Boring Mills

- No. 1 Rockford, 2" bar.
- 30" Colburn, Vertical.
- 24" Bullard Rapid Prod., latest type.
- 36" Bullard vert., 2 heads.
- 42" Gisholt, two heads, late type.

Planers

- 16x16x36" Pratt & Whitney Planer.
- 42"x36"x12" Cincinnati, 2 heads.
- 32"x32"x12" Ohio, 2 heads.
- 24"x24"x12" Chandler, 2 heads.
- 48"x48"x16" D. & H. Opens. 2 hds.

Miscellaneous

- 1" National Bolt Cutter, complete.
- 1 1/4" Acme double spindle Stay Bolt Cutter, with Landis Heads.
- No. 2 Kane & Roach Multiple P. & S. 100 lb. Little Giant Hammer.
- 50 lb. Little Giant Hammer.
- No. 2 Mitts & Mcmill Keyseater.
- No. 0 Baker Keyseater.
- No. 2 Baker Keyseater.
- Whiting Punch & Shear, No. 8, 36" throat, 1 1/4"x1 1/4".
- Wickes Punch & Shear, 48" throat, 1 1/2"x1 1/2".
- No. 8 Long & A. Punch & Shear.
- No. 1 Badger State Alligator Shear.
- 10" Bertsch Power Squaring Shear, 14 gauge.

Write for Complete Catalogue—We Buy, Sell and Exchange

Cincinnati Machinery & Supply Co.
28 West Second St., CINCINNATI, OHIO

All In Chicago Stock

MILLING MACHINES

- | | |
|--|--|
| No. 4 Cincinnati vertical miller,
rapid traverse. | No. 33 Kempsmith Prod. miller. |
| No. 1 Kempsmith plain, cone head. | No. 2 Cincinnati plain Hi Power
rapid traverse. |
| No. 1 1/2 B. & S. plain cone head. | Gooley & Edlund Lincoln type. |
| No. 2 B. & S. plain cone head. | No. 1 Kempsmith univ. cone head. |
| No. 28 Ohio plain, cone head. | No. 3 Kempsmith univ. cone head. |

LATHES

- | | |
|-----------------------------------|-------------------------------------|
| 11"x4' Star Lathe (new). | 16"x8' South Bend, plain chuck. |
| 12"x5' Hendey, q. c., taper att. | 16"x8' Monarch, quick change. |
| 14"x6' Hendey, cone. | 16"x8' Rockford, q. c., (new). |
| 14"x6' American, q. c. taper att. | 16"x8' Cincinnati, q. c. |
| 14"x8' Rockford, q. c., (new). | 20"x10' American quick change. |
| 14"x6' Flather, q. c. | 24"x10' Boye & Emmes, q. c., (new). |

SENSITIVE DRILLING MACHINES

- | | |
|-----------------------------------|-----------------------------------|
| New and Used 1, 2, 3 & 4 spindles | 3-spindle Avey ball bearing. |
| Allen b. b. drills. | 1 & 2 spds. Leland-G. Light Duty. |

UPRIGHT RADIALS AND MULTIPLE DRILLS

- | | |
|---|--------------------------------|
| 20" Barnes all geared. | 25" Barnes, stationary head. |
| 24" Barnes all geared No. 246 drill
and taper. | No. 13 Pratt & Whitney, 16-sp. |
| 20" Excelsior, b. g. | 3-sp. Hofer stationary head. |
| 24" Superior stationary head. | No. 2 Colburn, Heavy Duty. |
| | 2-sp. Colburn No. 2, Hy. Dy. |

SHAPERS

- | | |
|------------------------------------|-------------------------------------|
| 14" and 16" Smith & Mills. | 16" Gould & Eberhardt cone. |
| 16" Columbia, single pulley (new). | 20" Columbia, single pulley, (new). |
| 16" Barker cone. | 20" Gould & Eberhardt, cone. |
| 16" Rockford, cone. | 24" Columbia, single pulley (new). |

GRINDERS

- | | |
|---------------------------------|--|
| Bridgeport 110" Knife grinder. | 10"x36" Thompson Univ. T. & C. |
| Gisholt tool grinder. | Large assortment plain wet and dry
tool grinders. |
| Diamond Tool & Surface Grinder. | |

TURRET LATHES

- | | |
|---|--|
| Cleveland automatics, 1", 1 1/2", 3",
1 1/2" and 2". | No. 4 Bardons & Oliver, P. F. with
and without pan. |
| 1 1/2"x9' Acme, P. F. | No. 4 Warner & Swasey. |

MISCELLANEOUS

- | | |
|--|-----------------------------------|
| 14" Acme Single and Double Head
Bolt Cutters. | No. 12 Barber-Colman Gear Hob. |
| 8" Landis pipe machine. | No. 6-36" Fellows Gear Generator. |
| 4" Oster, (new). | New Federal Presses, all sizes. |
| Napier 10" Band Saws | 68N Bliss Double Action. |
| 6x6 Hack Saws. | 161 Toledo Toggle Press. |
| No. 3 Reynolds Screw Driver. | Buffer and Filing Machines. |

USED MACHINERY DEPT.

Manning, Maxwell & Moore, Inc.
27 N. Jefferson St., Chicago, Ill.

Fire Extinguishers

Like New—Guaranteed Condition

Approved by the Board of Underwriters
2½ Gallons Capacity—350 lb. Pressure
Price.....each.....\$5.50

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Belting—Pulleys—Hangers

**An Enormous Stock of Guaranteed
Machine Tools—Electric Motors**

TUBOR-VELICK & CO.

630 W. Lake St. CHICAGO Phone Monroe 4199

Good Tools at a Reasonable Price

The following is an illustration of our stock

- MOLINE DRILL "Hole Hog" 4 spindles, No. 5 taper, 2 individual tables 17¼"x32", oil pump and pan, weight 17500 lbs. Equal to new.....\$1000.
- PRATT & WHITNEY Multiple Drill No. 12, capacity 1/16" to ¾", equipped with 9 spindles No. 1 taper. Good cond...\$ 550
- DRAPER ENGINE LATHE 32"x12", actual swing 34", full swing rest, taper attachment, 2½" hole thru spindle, weight approx. 6000 lbs. A good serviceable tool for boring and turning.....\$ 475.
- GISHOLT 24", 2 step cone, 6¼" face, 5" hole thru spindle, taper attachment, lots of extra equipment. A good serviceable tool.....\$ 650.
- GRAY PLANER 30"x30"x8", 2 heads on cross rail, arranged for belted motor drive without motor. This machine is in very good condition.....\$ 950.

The Co-Operative Machinery Co.

7514 Indiana Ave.

Cleveland, Ohio

A Few Listings From a Stock of 2000 "Restored" Machines

Gridley 4-spd. 9/16", 3/4, 1 1/4", 1 3/4".
B. & S. Auto. Nos. 00, 0, 1, 2.
New Britain Automatic Nos. 22 & 23.
P. & Johnston No. 5-A & No. 6-A.
16' Niles Vertical Boring Mill.
16' Niles-Bement-Pond Vertical.
10' Betts Vertical Boring Mill.
10-16' Niles Vertical Boring Mill.
10' Niles Vertical Boring Mill.
96" Cincinnati Vertical.
96" Betts Vertical Boring Mill.
64" Bullard Vertical.
72" N.-B.-Pond Vertical Boring Mill.
72" Colburn Vertical Boring Mill.
42" King Vertical Boring Mill.
62" N.-B.-Pond Vertical Boring Mill.
5" Bar Barrett Horizontal Boring Mill.
3 3/4" Bar Barrett Horiz. Boring Mill.
10'x10'x20' Bement Planer, four hds.
10'x6'x16' N.-B.-P. Planer 4 heads.
84" Newton Rotary Planer.
72"x72"x18' D. & H. Openside.
48"x48"x14' D. & H. Openside.
48"x48"x14' N.-B.-P. Planer 4 hds.
48"x48"x12' N.-B.-P. Planer 3 hds.
48"x48"x10' Cincinnati Planer 4 hds.
36"x36"x12' D. & H. Openside 3 hds.
24"x24"x10' W.-Blaisdell tow heads.
28" Queen City Shaper belt drive.
24" Stockbridge Shaper Single Pulley.
20" Stockbridge Shaper Single Pulley.
24" G. & E. Shaper m. d. gear box.
16" Stockbridge Shaper, belt drive.
90" Putnam Wheel Lathe.
72"x58" N.-B.-P. Lathe motor drive.
60"x25" Pond Lathe, motor drive.
48"x22" N.-B.-P. Lathe motor drive.
42"x24" Niles-Bement-Pond Lathe.
42"x39" Putnam Lathe, motor drive.
36"x14" Putnam Lathe, motor drive.
30"x12" Whitcomb-Blaisdell, mtr. dr.

36"x14" Bridgeford Lathe motor drive.
60"-72", B. & S. Gear Cutter.
90" Pratt-Whitney Gear Cutter.
6", 11", 18" Gleason Gear Generators.
96" Gould & E. Hobber No. 96-H.
No. 12 Barber-Colman Hobber.
36-B Gould-Eberhardt Gear Cutter.
36-H G. & E. Hobber.
No. 25 Williams-White Bulldozer.
No. 8 Kling Double Angle Shear.
No. 2 Hiles-Jones Dbl. Angle Shear.
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1 1/4" & 1 1/2" Acme Upsetter.
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6" Cincinnati-Bickford Plain Radial.
6" Mueller Plain Radial.
6" American Plain Radial.
6" American Universal Radial.
5" Western Plain Radial.
7-spindle Henry-Wright B. B.
4-spindle Rockford Gang.
4-spindle Foot-Burr Rail.
No. 3-D Colburn Heavy Duty.
No. 4-D Colburn Hvy. Duty Dr. (2).
No. 3-A Warner & Swasey Bar.
No. 3A Warner & Swasey Chucking.
No. 6 Warner & Swasey Auto Chuck.
No. 4 Warner-Swasey Auto Chuck.
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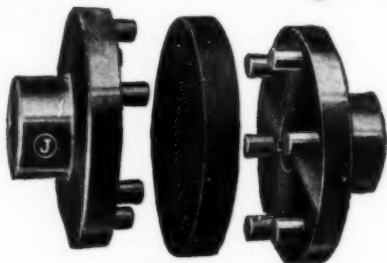
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Shop Furniture Division

The New Britain Machine Co.
New Britain, Conn.

Hitchcock